HOARD'S DAIRYMAN

JUNE 10, 1955

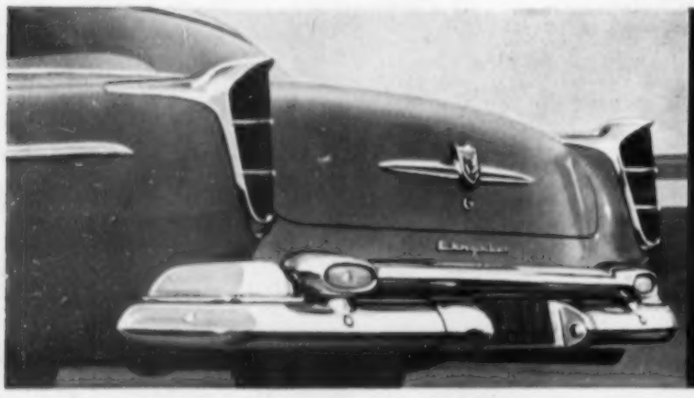
THE NATIONAL DAIRY FARM MAGAZINE

Come learn why it's today's smartest buy!

LOWER AND LONGER in its exciting new sleekness, Chrysler is today's fastest-growing favorite for city and country driving! And never has Chrysler's reputation for *value* been higher . . . exclusive new features, found in no other car, demonstrate this more clearly than ever. Come try Chrysler's 100-Million-Dollar *Ride* . . . with an entirely new family of great V-8 engines . . . fully-automatic PowerFlite transmission . . . and supreme riding ease over the roughest going. Your Chrysler Dealer is ready now to show you a money's-worth you just can't beat in *any* price-class!

CHRYSLER

Come take the "100-Million-Dollar Ride!"

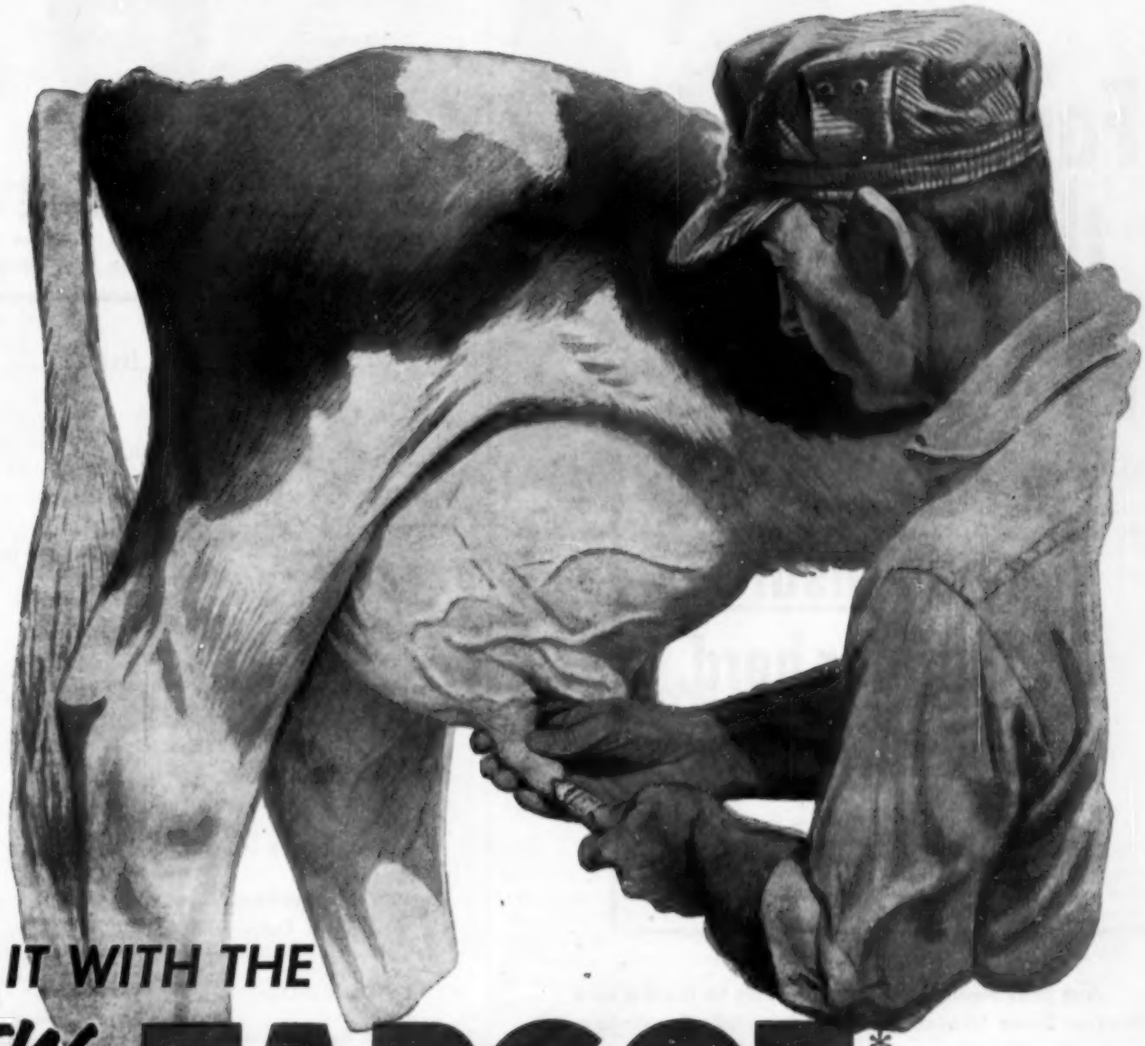


TREND-SETTING STYLING characterizes the new Chrysler, any way you look at it! Complete newness is very noticeable in the rear-end design: the long, uncluttered sweep of rear deck, in the bold, dashing Twin-Tower tail lights, and in the 22% larger rear window!

FOR A NEW, EASIER WAY to select desired gear-range, Chrysler has put the selector-lever where it belongs . . . on the instrument panel! With the one genuine Full-time Power Steering and big, extra-safe Power Brakes, Chrysler is a delight to handle, wherever you drive!

SAVE UDDERS . . . SAVE PROFITS FROM

MASTITIS



BLAST IT WITH THE NEW "4-BARRELLED" TARGOT*

ANTIBIOTIC OINTMENT

TARGOT offers you fast, positive action when mastitis strikes. It combines four powerful antibiotics for a smashing "4-barrelled" attack on mastitis-causing bacteria.

TARGOT coats the udder tissue and is not withdrawn when the quarter is milked—in fact, remains up to 72 hours longer. The tissue is saved and the udder speedily returned to normal. Available at your veterinarian, druggist or feed dealer. Write for free literature.

*Trade-Mark
†Chlortetracycline

Lederle

LEDERLE LABORATORIES DIVISION
AMERICAN Cyanamid COMPANY
PEARL RIVER NEW YORK

For less than 1¢ per week per cow you can insure a healthier herd and healthier profits!

(Based on the national average salt requirement per cow)

Just that much more is all it costs to feed a cow Morton Trace Mineralized Salt instead of ordinary salt

A healthy cow produces more milk . . . is better able to drop a healthy calf . . . and makes more money for you.

To *insure* good health, you should be feeding your cows Morton Trace Mineralized Salt.

Morton T-M Salt provides the sodium and chlorine your livestock must have, plus adequate amounts of vital trace minerals: iodine, cobalt, copper, iron, zinc, and manganese.

Most farm land lacks one or more of these essential trace minerals. Lack of any one can cause poor health . . . unsatisfactory reproduction . . . greatly reduced milk production.

Feeding trace minerals with salt is the surest, most economical way to guarantee an adequate supply. Morton Trace Mineralized Salt is inexpensive. All animals like it, will eat it readily every day. When they do, they get the salt they crave, plus the trace minerals they need.

To assure proper mineral balance, build your mineral feeding program around Morton T-M Salt. It's essential to a sound, economical mineral program—whether or not you feed a major mineral supplement. Its cost is so slight—the protection it offers so valuable—it is the only kind you should use.

Just be sure to feed it to your animals free choice. You know they need it. They know how much.

MORTON T-M SALT *Trace Mineralized Salt*

AT YOUR FEED DEALER'S IN BAGS AND BLOCKS

HOARD'S DAIRYMAN

The National Dairy Farm Magazine

Publishers
W. D. Hoard & Sons Co.
Fort Atkinson, Wis.

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COVER PICTURE

Dairy farmers really hit the big time in sales promotion last fall. Through an expanded set-aside, their American Dairy Association was able to purchase a share of the great new Disneyland television show. Appealing to consumers of all ages, Davy Crockett, Donald Duck, and all the fabulous Disney characters and programs are bringing our dairy sales messages to America's millions.

For our June Dairy Month cover, this staff photograph of our Fort Atkinson, Wisconsin, neighbors is most appropriate. Pictured are Mr. and Mrs. William Starke; Billy, 4, Susan, 3; and neighbor guests, Rhonda Fleming, 6, and John Davenport, 11.

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The receipt of Hoard's Dairyman is notification that money on subscription has been received. The label on paper will show date to which subscription is paid. Changes of address should reach us three weeks in advance. Include old address.

Unwholesome, immoral and questionable medical advertising is excluded. A sincere effort is made to carry advertising of only reliable people. We will always take it as a favor to be notified promptly whenever any advertiser's dealings with the subscribers are not in good faith or evidence a lack of business honor. Advertisers recognize the readers of Hoard's Dairyman as an up-to-date class of farmers, and we hold our columns for the patronage of only those with whom our readers can deal with profit and satisfaction.

Hoard's Dairyman is published on the 10th and 25th of each month. Advertising copy for the 10th of the month issue must be received before the 15th of the preceding month. For the 25th of the month issue, copy must be received by the 1st of that month.

Washington Dairygrams

OLEO MAKERS RAPPED BY FEDERAL TRADE COMMISSION. F.T.C. ORDERED MANUFACTURERS OF "FARM QUEEN" AND "REDDI-SPRED" OLEO TO STOP USE OF DAIRY TERMS. MANUFACTURER OF "CREAMO" BACK ON THE SPOT AFTER HAVING HAD A COMPLAINT DISMISSED.

MOVE TO SAVE SCHOOL MILK AND BRUCELLOSIS FUNDS. FARM BILL PASSED BY HOUSE INCREASED SCHOOL MILK FROM $50 MILLION TO $75 MILLION ANNUALLY. PROVIDED $15 MILLION ANNUALLY THROUGH JUNE 1958 FOR BRUCELLOSIS ERADICATION. SINCE THIS BILL WOULD RESTORE 90 PER CENT PRICE SUPPORTS ON BASICS, IT FACES ROUGH SLEDDING IN SENATE AND PROBABLE PRESIDENTIAL VETO. HOUSE, SENATE, AND PRESIDENT WANT SCHOOL MILK AND BRUCELLOSIS FUNDS, HOWEVER.

U.S. PURCHASES UP FOR BUTTER AND POWDER IN APRIL OVER SAME MONTH LAST YEAR. BUTTER, 19 MILLION POUNDS (LAST YEAR, 15 MILLION POUNDS); CHEESE, 8 MILLION POUNDS (LAST YEAR, 10 MILLION POUNDS); POWDER, 68 MILLION POUNDS (LAST YEAR, 42 MILLION POUNDS).

MILK FLOW UP AGAIN. APRIL PRODUCTION ABOUT EQUAL TO LAST YEAR AFTER PREVIOUS THREE MONTHS WERE 1 TO 2 PER CENT BELOW 1954.

FOREIGN TRADE BILL APPROVED BY DAIRYMEN. SENATE PASSED LONG DEFERRED TRADE AGREEMENT BILL. NOW GOES TO CONFERENCE TO IRON OUT DIFFERENCES BETWEEN HOUSE AND SENATE. DAIRYMEN IN STRONG POSITION – NO CONFLICT IN PROVISIONS RELATING TO IMPORT CONTROL SECTION.

HOUSE CUTS HEARINGS ON FEDERAL MILK MARKETING ORDERS. SUBCOMMITTEE DECIDED TO CUT OFF LARGE NUMBER OF WITNESSES WHO WISHED TO TESTIFY. WILL NOW SPEND ONLY FIVE DAYS ON CONTROVERSIAL ISSUE. DAIRY REPRESENTATIVES IRKED AT BRIEF HEARINGS.

C.C.C. DAIRY STOCKS AS OF MAY 1 INCLUDED 230 MILLION POUNDS BUTTER, 320 MILLION POUNDS CHEESE, 106 MILLION POUNDS POWDER.

Easy To Order Or Renew! . . . . .

HOARD'S DAIRYMAN ☐ New
Fort Atkinson, Wisconsin ☐ Renewal

I enclose $_____. Please send me Hoard's Dairyman for the next _____ years.

Name_____R. F. D.____

P. O._____State_____

SPECIALS

THREE YEARS $2.00 FIVE YEARS $3.00

(Reg. Price 1 Year $1.00)

(CANADIAN: 1 Year—$2.00 — FOREIGN: 1 Year—$3.00)

NEW IDEA MOWERS AND SIDE-RAKES are quick on-and-off. The semi-mounted mower (shown here) fits 65 tractor models. The full-trailing mower fits any tractor with PTO. Low-wheel and high-wheel rakes are suspension-trussed for rigid strength. Reels yield at both ends. Controls can be handled from tractor seat. Changes from side-rake to tedder at flip of lever.

How to speed up "Operation Hay-Time"!

What makes nutrient-rich, appetizing hay? First of all, good curing weather. The rest is up to you and your tools. The production of high quality hay requires fast, clean cutting; quick, even curing with minimum sunlight on leafy portion; good timing; rapid storing.

Fast cutting and curing

Because New Idea mowers are quick and easy on-and-off, you can jump into a weather break at a moment's notice. Built to close tolerances and a little stronger than necessary, New Idea mowers can be relied on to cut smoothly, steadily, cleanly, even on sharp turns. It's easy to get a day's cutting down by the time air temperature reaches good curing stage.

Hay is made in the windrow

A New Idea side-rake and tedder windrows hay for ideal curing. The quick drying, easy-to-shatter leaves . . . which carry most of the feed value . . . are turned into the center of the windrow. There they cure slowly, away from the searing, nutrient-bleaching sun. The coarse, tough stems stick out for faster curing. In this way both the leaves and the stems cure out evenly, which keeps shattering to a minimum. Most of the nutritional value of your hay gets to the barn and your live-stock.

Try it on your farm

To test the hay-making ability of a New Idea mower or side-rake, ask your community New Idea dealer to bring one out to your farm. Have him show you how to adjust and operate it for best results. Then mow or windrow a day's cutting yourself. It's our bet you'll never let that New Idea machine leave your farm.

NEW IDEA FARM EQUIPMENT COMPANY, DIVISION AVCO DISTRIBUTING CORP.
Dept. 1542, Coldwater, Ohio

Send coupon for free illustrated literature:

☐ Full trailing mower
☐ Semi-mounted mower
☐ High-wheel side-rake and tedder
☐ Low-wheel side-rake and tedder
☐ "New Ideas for Handling Hay"
☐ All-purpose elevator
☐ Twine-wire-tie baler
☐ I am a student . . . I farm _____ acres

NAME_____

ADDRESS_____

COUNTY_____STATE_____

Opinions, Brickbats, Bouquets

These columns are open to the readers of Hoard's Dairyman for the expression of their opinion on any subject, whether radical or conservative, destructive or constructive, wise or foolish, critical or commendatory. Hoard's Dairyman assumes no responsibility for opinions expressed.

Unfair to hawks

Would like to comment on your "Farm Flashes" column in the March 25 issue. I am always sorry to see people take hawks and owls to task as being completely predatory. You as well as I know that actually only a few types of Bullet Hawks steal chickens and that the Great Horned Owl alone is a chicken stealer at night.

Using a shotgun to control these so-called vermin usually will do nothing more than kill off the very beneficial Buteo Hawks and will never catch up to the real violators. Also, I believe you will find that facts prove that for every chicken stolen by a hawk or an owl, there are about 300 to 500 rodents destroyed by these same birds. The one compensation of destroying rodents far outweighs the cost of an occasional chicken that might be taken.

Ohio. ROBERT E. TAYLOR.

No profit here

Would there be any profit to the New York Holstein Queen at milk prices paid by one of our national milk manufacturers?

We get $3.10 per hundred pounds of milk with 4 per cent butterfat test, less 45 cents per hundred for hauling, leaving $2.65. That would be $927.50 for the milk. The hay would cost $200 instead of $108, the grain would be $450 instead of $350.

This particular milk company sends back a test of at least 1 per cent under their same test 4 years earlier. That would take another estimated $192.50 off the value of the milk. All totaled to this particular milk manufacturer's prices, Queen would net a profit of approximately one dollar.

The final feed cost would be $734 here while the price for milk would be $735 from this particular milk condensing plant.

I think the companies are forcing labor unions and organizations into strikes and holdouts by their greedy ways.

Kentucky. CASPER MILLER.

Green feeding not final step

In his article in your March 25 issue, Bruce Poulton calls green feeding the "final step" in pasture utilization. Several farmers in this area would dispute Mr. Poulton on this. They have found one more step beyond that of green feeding (daily feeding of fresh-chopped forage) that he describes.

These farmers are drylot feeding from a trench or bunker silo. The cows self-feed from these silos.

It takes no more time to dump a load of forage in one of these silos than into a feeding rack.

Forage must be evenly spaced over the growing season for daily feeding of fresh material. Droughts are serious, but feeding from a silo makes it possible to put up feed whenever it's available.

Green feeding makes seven-day-weeks a necessity. Equipment break-downs are serious. There's the daily need of attaching the chopper and wagons. There's often the need of working in the rain.

These horizontal silos are inexpensive. They're easy to fill and work well with self-feeding. They can be re-filled in the fall with corn silage so they're in use the year around.

Michigan. BOB MYERS.

A condition for direct payments

The producing end of the dairy industry is suffering from something. The main symptom is an empty feeling in the region of the money pocket. The illness has been diagnosed by a host of experts, no two of whom seem to agree on just what to call the disease or what the treatment should be.

Now I am going to state some facts, draw a conclusion from those facts, and suggest a possible remedy.

1. There are in this nation thousands of cows which are producing at a loss. The value of their output is less than the cost of their feed and care.

2. The total production of all of these unprofitable cows adds up to more milk every year than what we call "surplus."

If the production of these unprofitable cows were removed from the market, there would be no surplus.

I don't like "Government programs" of any kind, but if we must have a "Government program" to help the dairy farmer help himself, let it be done something like this:

Let the Government make a payment, so much per hundredweight of milk, or so much per pound of butterfat, to the processor, who would be required to pass all of it on to the producer, with this string tied to it: NO PAYMENT whatever for the product of any cow which did not produce at least 250 pounds of butterfat per year, (or 275, or 300, or wherever it seems best to set it).

Thus you would reward the dairy farmer who is trying to run his business like a business. You would induce some to test their cows, use proved sires, cull out low producers, feed better, etc., who otherwise would never do so. And, finally, you might drive some so-called dairy farmers out of business.

And there is where the trouble will arise. Thousands of politicians, both in and out of office, will arise and cry, "You want to help the fellow who doesn't need help! And the fellow who needs help, you want to drive him out of business!"

That's just what I want to do, for his own good and for the good of the dairy industry as a whole. Under a "program" such as I have outlined, there would be an alternative to going out of business. The alternative: Wake up, use the tools that are available (and have been for years). Test. Cull. Use proved sires. Keep records. Feed according to production.

I would prefer not to use tax money. You could levy an assessment against all milk sold and use the proceeds to reward the efficient producer. I can hear the politicians: "Robbing the poor farmer to make the rich farmer richer."

How about milking the taxpayers to subsidize the inefficient producer who stubbornly refuses to make any move to improve his methods?

That's what support prices do.

Wisconsin. PETER CURTIS.

Better bottled milk needed

All the advertising in the world is not going to sell a product unless that product is good and desirable. Here's what I mean.

When the milk comes from the cow it is rich and creamy and flavorful, but, by the time the city housewife buys it from the grocer, it is thin, blue and watery, and sometimes slightly soured (depending on how long it has been kept unsold at the store).

I know this for a fact. When we were forced out of the dairy business by falling milk prices and high cost of feed, we bought milk from the grocery store in town. Three cartons out of four were unfit to drink. No wonder little children don't like milk, or it has to be dressed up with chocolate and malt and other things before they will drink it.

There wouldn't be a surplus of butterfat in the country if the processors were made to put out a nice rich bottle of milk instead of the poor quality they now do.

Most people in big cities haven't the slightest idea what good milk tastes like. The poor populace is being cheated of flavor, nutrition, and a desire to buy because the milk isn't good enough to really and truly want.

Missouri. MRS. D. F. SWEARINGEN.

Bouquet to May 10 issue

There are some good articles in your May 10 issue. I always like the soundness and dependability of your farm items and of your editorial policies.

Wisconsin. L. J. MERRIAM.

Take choice on controls

Isn't it odd that after all these years of argument pro and con on the dairy question that it was left to me to solve the puzzle of declining prices and surpluses? Here is the remedy for all our dairy ills:

Secretary of Agriculture Benson has recently stated three possibilities as a result of the U.S.D.A. study:

1. Continue the present program of buying surplus dairy products.

2. Put temporary controls on farm milk production.

3. Let dairy products set their own level: then pay farmer directly for any difference between that and support levels.

Our solution has to do with No. 2 and 3. In the production of grains, cotton, etc., in order to participate in the government payments farmers are required to suffer controls. So far dairying has no controls but there should be, however. The controls that I suggest will work no hardship on the farmer whatever. In fact, the farmer will fare better with the controls not only with better prices but in better health.

I recommend using Secretary Benson's plan No. 3 of direct payments from the government through the processing plants to bring dairy receipts up to 100 per cent of parity. Anything less than parity is an insult to the hard working dairy farmer.

Now about the controls: Let us understand that no farmer is required to submit to any of these controls unless he chooses. He can be regulated by the law of supply and demand and take his milk to the processing plant and get the price the market will pay. He only submits to controls when he wants to get full 100 per cent parity price.

Now the controls:

1. Any farmer wishing to get government payments must sign an affidavit he is using no milk replacer for his calves but is feeding whole milk.

2. Every calf sold for veal must weigh at least 150 pounds.

3. Every fifth heifer calf must be vealed.

4. The dairy herd must be Bang's free.

5. Every farmer participating must sign an affidavit that he is using no butter substitute and will sign that he has bought a certain amount of butter according to the size of his family. This requirement is also binding on the landlord where a farm is rented.

6. Each farmer will be required to buy for his household according to the members of his household a

"When are you going to get rid of those worthless, fat, old hens?"

certain amount of cheese or ice cream.

7. To share in the government subsidy each farmer shall use each day at least 1½ pints of milk for each member of the family. This also holds true for the landlord.

8. Every farmer getting government subsidy is required to test by an accredited testing association every month and no cow shall be kept that fails to produce a certain amount of butterfat annually.

MERTON WEITTENHILLER.
Wisconsin.

Go into retail

The main reason for the present plight of the dairy industry is the greediness of the middleman, the retailers, and the labor unions involved in the processing and distribution of milk.

The solution to this problem I believe is fairly simple. It is an absolute necessity that the dairy farmer, through his marketing co-operatives, such as the Pure Milk Association in the Chicago milk shed area, should go into the retail dairy business in direct competition with the dairies.

Now I don't believe that it would be necessary for the dairyman to take over more than 10 or 15 per cent of the market in any given milk shed area. With that amount of the market under his control he could force a contract from the dairies specifying that they buy only milk from farmers belonging to the marketing co-op in that area. For example in Chicago the dairies could buy milk only from farmers who belonged to the Pure Milk Association.

With such a contract under their belts the co-ops could then turn around and restrict their own memberships on a quality basis. For instance to farmers who averaged below a 20,000 bacteria count.

Having such a contract with the dairies to buy only milk from members of their co-ops and a restricted membership in these co-ops the good dairyman would be guaranteed a fair and equitable price for his milk; 60 per cent of what the milk retails for. However, if the dairies refuse to sign a contract, then the co-ops could go after complete control of the retail dairy business. Either way the dairy farmer would receive far more for his milk than he does now.

Illinois. WM. M. DAMISCH.

License all farmers

I propose that a new farm program be enacted along the following lines:

1. License all bona fide farmers!
2. A farmer would have to earn his living on a farm to be eligible for a license.
3. Anyone earning $3,000 or more from any source other than the farm he is working, would not be considered a farmer and therefore not be allowed a license.
4. Anyone without a license would be considered as producing surplus and would be subject to heavy cuts in production of surplus crops and produce.
5. Any licensed farmer would have no acreage limitations.
6. Any non-licensed farmer could not use schedule D when reporting his income tax.
7. States with sales tax could make anyone without a license pay

(Continued on next page)

roll out the bushels NON-STOP

NEW "BIG-BIN" MODEL 66
UNLOADS ON-THE-GO
$1250
complete with PTO attachment, f.o.b. factory

When your crop reaches perfect ripeness and weather breaks in your favor . . . . the minutes count.

Now you can harvest *non-stop* . . . . with your own "Big-Bin" Model 66 ALL-CROP Harvester; be ready to move fast and *keep* moving.

The big, new 25-bushel grain bin unloads on-the-go . . . instantly controlled from the tractor seat. Empties faster, with new big-capacity auger and long, truck-high delivery spout.

This is your year! Experience a new high in ease and speed of harvesting. Change to a "Big-Bin" ALL-CROP—you can pay for it easily with your own home-harvested crops.

SELF-PROPELLED MODEL 100
WITH 30 DUAL-RANGE SPEEDS
$4095 with 9-ft. header, f.o.b. factory

Powered by the dynamic WD-45 POWER-CRATER engine. Big-field capacity, with true ALL-CROP ability in more than 100 crops. Has all the features that have made the ALL-CROP Harvester wanted by more farmers than any other combine.

POWER-CRATER and ALL-CROP are Allis-Chalmers trademarks

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

ALL-CROP Harvesters

Do you have the problem of

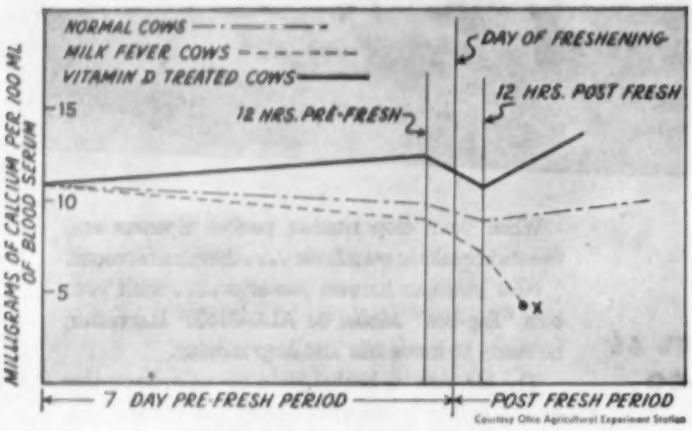
MILK FEVER?

Here's GOOD NEWS!

AN INEXPENSIVE WAY

of feeding for

PREVENTION



This graph portrays changes in the blood serum calcium of normal, milk fever, and vitamin D-treated cows before and after calving. The heavy line represents cows fed 30 million units of vitamin D per day for 5 to 7 days before freshening. Note high level of blood serum calcium which protects against milk fever. The lower broken line represents low calcium levels found in milk fever cows. At point X milk fever cows lose consciousness.

Has milk fever proved to be a problem among certain cows in your herd? Then this advertisement by Standard Brands will be welcome news for you.

For many years scientists have been experimenting with heavy doses of Fleischmann's Irradiated Dry Yeast to prevent milk fever. These scientists were seeking to learn at what level and for what period of time heavy vitamin D intake would prove most effective and cost the least.

After fifteen years of experiments at the Ohio Agricultural Experiment Station, recommendations can now be made as to the proper level of vitamin D to feed for milk fever prevention. We can also tell you that feeding at this recommended level, each day, for 5 to 7 days before freshening, is comparatively inexpensive.

Remember, the feeding of heavy doses of FIDY is not for the treatment of milk fever — it is used as a *preventive* of milk fever. See your feed dealer or veterinarian.

If you have experienced milk fever losses and your feed dealer or veterinarian is not yet prepared to take care of your needs —write us. They and we can now help you, thanks to advances in dairy science. Address STANDARD BRANDS INCORPORATED, Desk HD-65, *Agricultural Department*, 595 Madison Avenue, New York 22, N. Y.

Fleischmann's F·I·D·Y

IRRADIATED DRY YEAST RICH IN VITAMIN D FOR FOUR-FOOTED ANIMALS

Opinions, Brickbats, Bouquets . . .

(Continued from page 539)

sales tax on all farm equipment and supplies.

8. A non-licensed farmer would not be eligible for A.S.T.P. payments. If it was so desired, a two-price system for all agricultural products could be put into effect (a base and surplus). Base is what is consumed in this country, surplus to be exported on lower world price level. Base to be 95 to 100 per cent of parity.

A licensed farmer would get base price for his products and an unlicensed farmer would get surplus.

Advantages of this system:

1. This system would place agriculture back into the hands of the bona fide farmer.

2. It would eliminate or greatly reduce surplus at no cost to the government.

3. By increasing the farmer's income, it would increase his purchasing power and thus benefit other segments of labor and industry with no bad effects.

4. It would increase income tax payments to the government; first, by farmers, and secondly, by highly paid individuals who now invest in farms and produce surplus at no profit to evade income tax payments.

5. This program would prevent no one from farming, if he so desired.

6. It would encourage the able and good farmers to stay on farms or leave factories and go on farms, thus making more jobs available in cities.

7. Banks and loaning agencies would loan more money to beginning farmers because of the better prospects for success.

8. It would make for more full-time farmers and less part-time farmers which would make for better farmers and better wage earners in other jobs.

This is the basic farm plan as I have figured it out. It may have to be altered here and there. The base and surplus plan could be used entirely or perhaps a combination of both.

There are so many good features to this plan, that I feel a lot of thought should be given it.

Michigan. RAYMOND TESCHLER.

"Pure hot air"

Once we worried about manufacturers manufacturing a substitute for butterfat out of unusable soap by-products. Now we have an even better product to worry about as our own friends the milk dealers are making a substitute for butterfat out of pure hot air!

This wonderful new product "instant powdered milk" is certainly the crowning blow. In our milk market dairies are shutting off shippers whose milk tests less than 3.5 because the health departments claim that such a product is not milk — but does that stop the dairies from marketing skim "milk"? You bet it doesn't.

While we go shouting up and down our convention halls about butter substitutes, they have taken something they used to feed the hogs and are rapidly talking the public into believing it is whole milk.

It takes more than 10 quarts of 3.5 milk to make a pound of butter. If skim were sold to processors for enough to put the product on the market for 12 instead of 9 cents a quart, no consumer would have known the difference. To us it would mean 30 cents on each pound of butter to either compete with oleo and pick up sales or to add to the price of milk (it would mean over a dollar a hundred).

Does anyone suppose the dairies will volunteer to give us this money? Is General Motors a socialistic, tramped-down slave state because it sets its own price to middlemen instead of meekly offering its products up for what they will bring like "strong independent agriculture?" We, in milk, have more organization than any other branch of agriculture. Let's use it first to get the price of skim up where it belongs and so help farmers in all sections of the country and stop getting pushed into wasting our energies fighting each other over area and commodity straw men.

Maryland. GENE SULLIVAN.

Need pleasing flavor

High bacteria count is bad enough but bad flavor is even worse. If we really want to sell more milk, we must produce a product with a pleasing flavor.

Years ago the housewife was not so hard to please because other products weren't flavor perfect but those days are gone. Let's all try to produce milk with a pleasing flavor. That's one sure way to sell more milk.

Colorado. WALTER ANDERSEN.

"Red and yellow machinery"

The "Self-Help Plan" of the National Milk Producers Federation is so illegal under present anti-trust laws that Congress would have to pass new legislation to permit its use. If we think our city cousins are aroused against us now, wait until they hear this one. Secretary Benson's self-proclaimed morality will not permit him to endorse it and a Congressional majority will see it for what it is. This monumental piece of "red and yellow machinery" is only wasting our time and resources.

The dairy industry is being used. Used as a wedge to split into impotent pieces the farm program under which we enjoyed a fair degree of prosperity. A farm program which recognized the importance and dignity of our place in the economy of the nation.

There is nothing immoral in producing abundantly and in knowing that tomorrow we won't be hungry. Any trouble in our farm programs can and should be corrected within the bounds of this theme.

Apply into our sales promotion fund a fraction of the amount which we would need to run the "Self-Help Plan". If necessary, use a large fraction. Let's give stored dairy products away to people lacking sufficient buying power and who are not consuming an adequate amount. Let's not permit families to grow up without developing a taste for and the habit of using our products.

If we align ourselves with other commodity groups and all have the courage to correct inequities where they exist, we can reinstate a good farm program. With certain safeguards our "surplus" need not

be a problem, but could be used for our ultimate advantage.

Let's employ even more pressure in our stepped up sales promotion. Remember how little the per capita consumption would have to be increased to remove our present surplus. At least that is what we have been told. Or in believing that, did we buy another package?

Washington. RALPH E. BITNEY.

Preservative in oleo

One of the factors, it seems to me, which is not sufficiently stressed in this battle between oleo and butter, is the fact that all of the brands of oleo that I have seen on the market are plainly labeled to contain a preservative, and for that reason the keeping qualities of oleo are greatly superior to butter. It will take some time to determine whether or not this preservative in oleo is sufficient in amount to have a prejudicial effect upon the health of the users.

Washington. HARCOURT M. TAYLOR.

More power to butter

I'm a housewife and a farmer's helpmate. We've had to test for Bang's, which just recently showed up in our herd of really good cows. And we're feeling mighty "low" about losing 5 from our 14 milk cows because 2 of them are our best. Our milk checks are going to be very much smaller.

Mrs. J. G. Ozment (May 10) wrote about the high price of butter and buys margarine. And she a farmer's wife! We're paying 62 cents per pound for butter at our plant and we use a lot of it. But if I have to skimp on groceries it is not going to be less butter. Our three children and ourselves will not be deprived of such good food.

It does make me "mad" to pay 10 cents for a glass of milk but coffee is usually 10 cents a cup, too. Which has the more food value? We all know the answer to that!

It would seem reasonable if the factories and so forth would stop laying off men and paying overtime to the rest. Perhaps wages would level off and the prices that we farmers must pay would be less. Our products could be sold cheaper and everyone could afford to use them.

However, there are plenty of extra pennies to pay for things outside of food. And if most people would stop and think of how they spend their money, there would be extra pennies for butter and milk.

More power to butter, though! We raise the cows, produce good milk for better butter, cheese, and by-products . . . and our family is the best of consumers.

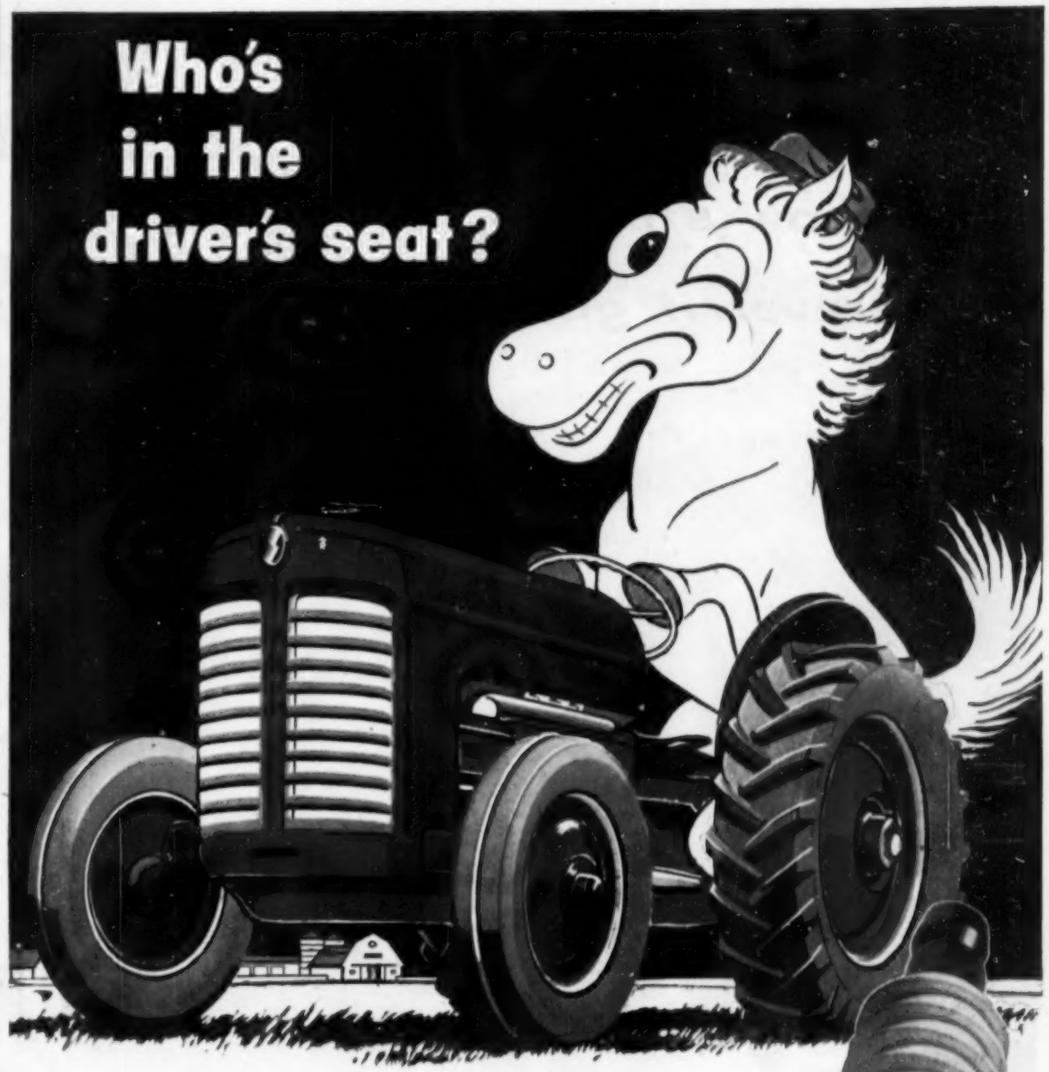
Wisconsin. MRS. H. M.

Buy for nutrition

May I ask Mrs. J. G. Ozment of Indiana, a dairy farmer's wife, (May 10), how they dispose of their dairy products? According to her letter, they do not use any butter because it is too high priced.

We use all of the dairy products we want for the good nutrition they furnish, not because they are cheap, expensive, nor to get rid of a surplus.

Wisconsin. MRS. PAUL FELSER.



WATCH
BIG TOWN
NBC-TV

Sparky is! For that's the AC Spark Plug symbol of lively horsepower. And on the farm today you'll find horsepower in the driver's seat. That's borne out by the fact that more than 4,500,000 tractors are at work on farms in America—and by the fact that 90% of the farm products go to their first market by truck.

Makes horsepower pretty important, doesn't it? Makes it real good sense to use AC Hot Tip Spark Plugs, too. They're the kind with the long, thin, deep-recessed insulator tip that heats fast, keeps combustion residues from fouling the plug. The Hot Tip is an AC *exclusive*. So be sure you put AC Spark Plugs in your car, truck, tractor and other farm engines.

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Watch heads turn as you glide proudly down the street in your new Chevrolet. Hear its husky hum of power out on the highway. It's no wonder Chevrolet is stealing the thunder from the high-priced cars! Name it, and Chevrolet has it:

Power? Plenty, in the 162-h.p. "Turbo-Fire V8" (180-h.p. is optional at extra cost) or in two new "Blue-Flame" 6's! Plus Powerglide, Overdrive (extra-cost options), or new Synchro-Mesh transmission. A choice of *six* exciting power-drive combinations! . . . **Ride?** Let a demonstration drive describe *real* handling ease. New front and rear suspension, new High-Level ventilation, tubeless tires (at no extra cost) are only a few of its luxury-car features. . . . **Options?** The works! Power Steering, Power Brakes, Automatic window and seat controls on Bel Air and "Two-Ten" models, even Air Conditioning on V8 models. . . . **Styling?** Fresh and functional, free from that "overdone" look!

Call your Chevrolet dealer for all the wonderful details and a demonstration drive. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

The *motoramic* **Chevrolet**

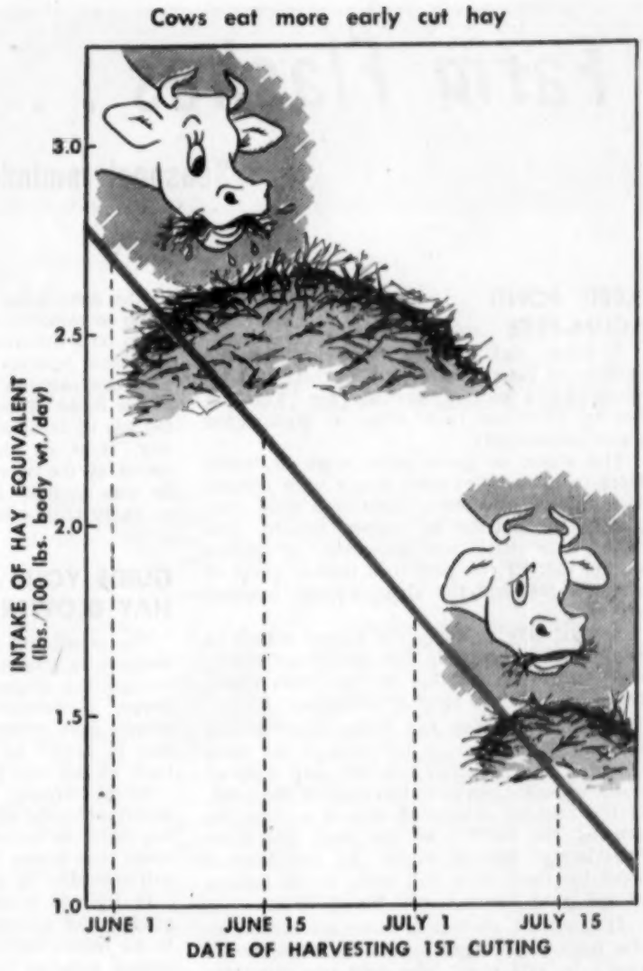
STEALING THE THUNDER FROM THE HIGH-PRICED CARS!

HOARD'S DAIRYMAN
Founded in 1885

You can save $125 per month

By cutting hay two weeks earlier grain purchases for a 30-cow herd can be reduced this much. Here are the dramatic findings of New York research.

by J. Thomas Reid



TWICE AS MUCH HAY is consumed if cut June 1 compared to mid-July. Chart shows influence of harvest date on intake of first-cut roughage with a 1 to 3-3½ lb. grain ratio.

CHANCES are that, if you have 30 cows and cut your hay crop at the same time your neighbor does, you can save as much as $125 per month by moving up your cutting date two weeks. You'll probably ask, "Why is this possible?" The answer is simple. Young forages have higher feeding values and produce more milk than more mature ones.

This answer has been known for a long time. But, since the advantages of early harvesting have not been put into figures, it has not been used much.

Most of the practices (particularly those dealing with protein) used in feeding dairy cows are based on:

1. Whether the roughage is legume or nonlegume; and
2. The assumption that roughages in general have only 50 per cent t.d.n.

When only these factors are used in balancing rations, we may overfeed or underfeed our cows on grain and/or protein. This is the result of not considering the stage of maturity of our roughages.

Recent research at Cornell University provides more refined tools for balancing cows' rations. These figures make it possible to predict the main feeding qualities of roughage **if you know when it was cut.** As a result, you can do a more accurate and economical job of feeding now than you have been able to do previously.

Here is what this research turned up:

Cows eat more early-cut than late-cut forage. Look at the chart on this page. It shows that in the Northeast about twice as much dry matter will be consumed from a crop cut on June 1 as from the same stand of forage let grow until the middle of July before cutting.

Although growth stage is most important, other things, such as leaf content, influence palatability. There is, therefore, a difference in the intake of several forages cut on the same day.

Feeding large amounts of grain also lowers the consumption of roughage. The intake of late-cut roughages is probably depressed more by grain feeding than is the case with early-cut roughages.

Cows get more energy per pound of dry matter from early-cut than later-cut forage. In the Cornell experiments, the t.d.n. content (which is a measure of energy value) was studied in more than 70 forages cut between May 18 and July 8. When the forages had not been cut or grazed previously during the same season, the t.d.n. content decreased 0.5 per cent per day after April 30.

But most important, **the amount of t.d.n. could be figured from the cutting date.** This held for forages no matter whether they were fed green or as a silage or hay . . . provided they were first cuttings and a disproportionate loss of leaves had not occurred.

t.d.n. and digestible protein contents (%) of hays or silages on dry basis**

Cutting date*	Nonlegumes Growth stage	t.d.n.	Dig. Prot.	Legumes Growth stage	t.d.n.	Dig. Prot.
First cutting						
June 1	Vegetative	70	13.5	Vegetative	70	18.7
June 15	Early head	63	10.0	Bud	63	14.5
July 1	Full bloom	56	6.7	Bloom	56	10.2
July 15	Mature	49	3.7	Mature	49	6.4
Aftermath following regrowth for 5 to 9 weeks						
		58	10.0		58	14.3

** Multiplying the above values by approximately 0.9 and 0.25-0.27 gives values for hays and silages, respectively, containing the usual amounts of moisture.

* The values given for various dates probably apply to most of the Northeast, but are not expected to apply to the conditions of the South or far West. Latitude and elevation undoubtedly influence this picture.

Timothy vs. alfalfa . . .

This means that timothy cut on the same day as alfalfa has about the same energy value as alfalfa (or any other plant tested to date). It is possible that the t.d.n. content of some kinds of plants may not follow this pattern. But the results to date indicate that the t.d.n. content of the common forages drop off at a predictable rate.

The feeding qualities of aftermath forages are somewhat different from those of first cuttings. In these tests, the t.d.n. content of second and third cuttings, after regrowth periods of five to nine weeks, varied from 62 to 57 per cent. This kind of forage does not fall off in t.d.n. as rapidly as first growths, but remains fairly constant.

The value of 58 per cent listed in the table would seem to be safe for use in feeding practice. You may be surprised that second and third cuttings never have as much t.d.n. as first growths cut in the Northeast by the first week of June.

At the same growth stage, legumes are higher in protein than nonlegumes. But the amount in both kinds of plants decreases greatly as forages approach maturity. Because of this, nonlegumes cut early can have more protein than late-cut legumes. This point is generally overlooked in practical feeding.

Then to make matters worse, the protein in first cuttings becomes progressively less available to the animal as the plant approaches maturity. As a consequence, advancing growth stage has a doubly bad effect upon the value of forage protein.

The protein value of second and third cuttings was found to be relatively constant but dependent upon the kind of plant. A striking characteristic of these forages is the large amount of protein relative to the amount of t.d.n. they contain. *(Turn to page 575)*

The author is professor of animal husbandry at the New York Agricultural Experiment Station, Cornell University.

Farm Flashes . . . .

Seasonal reminders and research notes for the dairyman

KEEP POND SCUM-FREE

It takes just a little effort to keep the surface of your swimming hole clean and inviting for a cooling, summer dip. The following directions are from a Washington plant pathologist:

The algae, or green pond scum or water moss, can be killed very easily with copper. It is usually possible to clean up a pond completely by putting in copper sulfate, also called blue vitriol and bluestone. If applied at the rate of one part to a million parts of water it will kill the algae without injuring the fish.

A good way to apply the copper sulfate is to dissolve 1 pound in 100 gallons of water; then spray the solution on the areas where the green scum is most troublesome.

Usually the wind has blown most of the floating green scum to one side of the pond where it can be easily reached with a spray boom extended out over the edge of the pond. If the solution is applied around midday, by evening the surface of the pond will show considerable kill of algae. In less than a week the dead algae will settle to the bottom of the pond where it will finally decay.

If there are no fish or other marine life in the pond, a stronger copper solution can be used. In this event, the only treatment required is to sprinkle powdered copper sulfate over the pond at various places. The algae will quickly disappear, leaving the pond with clear water and a weed-free bottom. For ponds used only for swimming, this is the recommended treatment.

CHICKENS HAVE PSYCHOSES, TOO

A California poultry specialist says you should consider the social stresses on your hens if you want them to lay eggs.

According to W. O. Wilson, "You double vaccinate your birds; you move them out of

the familiar brooder into pens; you give them new feeders and waterers they have never seen before; and you give them new friends. All that applies stress to the birds and sets them back. Try to bring something familiar, like a feeder, along with them.

"Many poultrymen needlessly apply stress when they cull. You want to keep the same number in the cages, so you put in a good laying hen where you removed the cull. The others beat her up and very soon she's a cull."

The California study found that five new hens and five old hens could be put in a cage, without damage to egg production. A bird that has eaten its fill and stopped will start eating again when another hen is put in the pen. Also, a hen that has apparently eaten to capacity on wheat will start all over again on a different grain like barley or corn.

Wilson further cautioned that a poultryman can even be too regular in taking care of his birds. There was a case where a man fed his birds at exactly the same time every day, right on the hour. The birds would crowd at the door waiting for him. One day he was an hour late and they had piled up so badly that many were killed.

GUIDE YOUR HAY BLOWER

The possibility of spoilage can be greatly reduced by guiding the hay blower when you are putting chopped hay in the mow. O. I. Berge, University of Wisconsin farm engineer, says either guide the blower hood as hay is blown in or readjust it after each load, so hay won't pile up in one spot.

Since different parts of hay contain different amounts of moisture, the heavier wet hay tends to separate from the light dry hay when it is blown in the mow. The moist hay will probably spoil if not handled properly.

If dry and moist hay are kept together by guiding the blower, very little hay will have to be moved with a fork. The dry hay will absorb some of the excess moisture from the wetter material.

Another way to reduce the moisture problem is to make a longer cut with the chopper. Long, chopped hay won't pack as tight as short hay and is more palatable to cows because less dust is present. To get a long chop, set the chopper for at least a three-inch cut.

To increase length of cut, use fewer knives; increase feed table speed, or decrease cutter head speed. Too high a moisture content may cause excess heating. Unless you have an artificial drying unit, put chopped hay in the mow a little dryer than long hay.

TAKE PRECAUTIONS WITH SUNBURN

Sunburn may occur even on a cloudy day. Even while the sun itself may not be visible, light rays can filter through the clouds and can cause more damage because a person may be exposed longer. Rays which are reflected from water, ice, snow, or sand increase the rate of burning.

It is very possible to become seriously ill from the effects of a sunburn, sometimes a fever accompanies the burn. It is wise to become exposed to the sun's rays gradually. If rapid exposure is unavoidable, be sure to keep well-covered.

The application of olive oil, cocoa butter, burn ointment, or a good suntan lotion helps to prevent burning by keeping the skin soft.

The American Red Cross recommends calamine lotion for treatment of a burn. It is soothing and does not stain clothing. Some oils provide relief. A wet dressing of Epsom salts solution is excellent in severe cases.

If blistering is extensive, a dressing of sterile petroleum-coated gauze should be used. If the burn covers a considerable area of the body or if a fever results, be sure to consult a physician.

SPRAY EVERGREENS TO CONTROL BAGWORMS

Entomologists say June is the best month of the year to spray evergreens, shrubs, and trees for bagworms. You can recognize bagworms as caterpillars which enclose themselves in cocoon-like bags camouflaged with bits of twigs and leaves from the plant on which they are feeding. They have enormous appetites and strip the leaves from the plants as they crawl about.

Since young worms are easier killed at this stage than when they are larger and more mature, now is the time to spray.

Several sprays can be used to good advantage. Lead arsenate at the rate of 9 teaspoonfuls per gallon of water or toxaphene at the rate of 6 teaspoonfuls of the 40 per cent wettable powder per gallon of water are recommended. Emulsifiable forms of toxaphene are commercially available; it is suggested using 2 teaspoonfuls of the 60 per cent emulsion per gallon of water.

Malathion also gives excellent control of the bagworm. Two teaspoonfuls of the 50 per cent emulsion per gallon of water will do the job. It is also possible to control the pest by using dust containing 4 per cent malathion.

Regardless of the insecticide used, it should be applied as soon as possible.

GOOD TIME TO PEEL POSTS

The best time to peel trees that are to be used for posts is from early spring until August. Posts to be treated in pentachlorophenol must have their outer and inner bark removed.

If posts are cut and peeled now, they'll be ready for treatment in early fall. They

should be stacked off the ground in a shady, airy spot to permit uniform drying with a minimum amount of checking.

They should be left round to avoid serious checking. Seasoned posts can be submerged in an oil drum containing a 5 per cent solution of pentachlorophenol for about 72 hours.

Maple, gum, oak, ash, pine, and other common species become durable when they are so treated and will have a life at least three to five times longer than untreated posts.

Most farm woodlots have cull trees that will make good fence posts if treated in this manner.

Make your tractor road-worthy before you travel the highways with it. Michigan State College engineers suggest checking vision, lighting, flags, reflector tape, steering apparatus, and brakes.

What will you have . . . .

Delegate or Proxy system

for governing a breed association?

Here is how the five dairy breed organizations are governed, their officers elected, and the voice of the farmer-breeder heard in the affairs of the association.

DOES the farmer-breeder actually have a voice in running his breed association? According to some critics, he does not. According to other persons, he does have a voice but fails to exercise it. Then, of course, there is the large group which feels that the farmer-breeder does have a voice, uses it well, and actually controls the policies and activities of the breed association to which he belongs.

Let's take a look at each of the five breeds and see how they are set up to be representative, democratic organizations.

Proxies for Ayrshire breeders . . .

To be a member of the Ayrshire Breeders' Association you must own Ayrshire cattle. Further, a member of the association must recommend you to membership. After approval by the board of directors, you are "elected." Should you, within a period of five calendar years, however, fail to register or transfer an animal, you are dropped from the active membership list and enter an inactive status which deprives you of your voting rights.

At the annual meeting of the Ayrshire Breeders' Association, you may vote in person or by proxy. Your proxy may be held by another active member. No proxies may be solicited outside of the state or district in which the solicitor lives. Your proxy must be in the hands of the committee on credentials and proxies at least seven days prior to the date of the annual meeting which, each year, takes place between April 15 and May 15. The place and hour are determined by the board of directors.

At that annual meeting you, in person or by proxy, choose by ballot the president, first vice-president, and three additional vice-presidents of the association. At the same time, you will elect six members to the 18-member board of directors. The directors are elected for three-year terms.

The executive secretary and treasurer of the association are appointed by the board of directors. The board also elects the executive committee, which is made up of six members of the board, the president, and first vice-president.

A member of the board of directors may not serve more than two consecutive terms, of three years each. A board member may not serve more than three consecutive years on the executive committee.

Insofar as nominations are concerned, the president of the association appoints a nominating committee to nominate officers and directors. However, nominations may be made from the floor by any active member.

In the Ayrshire association considerable debate and discussion has been brewing over the matter of proxies. In 1954, for example, the constitution and by-laws committee tried to do away with the proxy and, in its place, put a ballot which could be used by all members of the association. The voting would all be done before the annual meeting. This move was defeated. Its defeat was mainly by those who held the most proxies.

It is felt by some members of the association that each area or district throughout the country should be proportionately represented, either through delegates or through area-elected directors.

At the 1955 annual meeting, members passed a motion instructing the by-laws committee to work up an amendment for next year's meeting which, if passed, would require a secret mail ballot by all members to elect officers. This would replace, of course, the present proxy system which has been under fire off and on for several years.

Swiss have seven districts . . .

Although the Brown Swiss Cattle Breeders' Association has a proxy system, too, its method of electing directors differs from that of the Ayrshire association. The country is divided into seven director districts from which a director is elected as the terms expire. A director is elected for a three-year term and he may succeed himself for only one term.

Every five years the board of directors examines the director districts and makes adjustments in the territory covered. Only breeders who reside in a particular director-district can make a nomination for director from that district.

In addition to the seven directors, the Brown Swiss association has a president and vice-president. In the case of these two officers, however, there is no limit on how long they may serve in their elected office. It is an unwritten rule that the vice-president will serve for six years, the same length of time as a director. The presidents of the association usually serve from two to five years.

Membership in the association is limited to owners and constructive breeders of Brown Swiss cattle in this country. The applicant must be endorsed by another member or an officer of a bank. After being investigated by a committee, the applicant's name is submitted to the membership. Three adverse letters received within 30 days deny membership in the association. The membership fee is $25 and is good for life. Corporation membership is limited to 20 years.

A Brown Swiss breeder may assign his proxy to another member or to the proxy committee which he may *(Turn to page 576)*

G. Fred Williams
President
Ayrshire Breeders' Association

Allen Alfred
President
Brown Swiss Cattle Breeders' Association

R. H. McMurtrie
President
American Guernsey Cattle Club

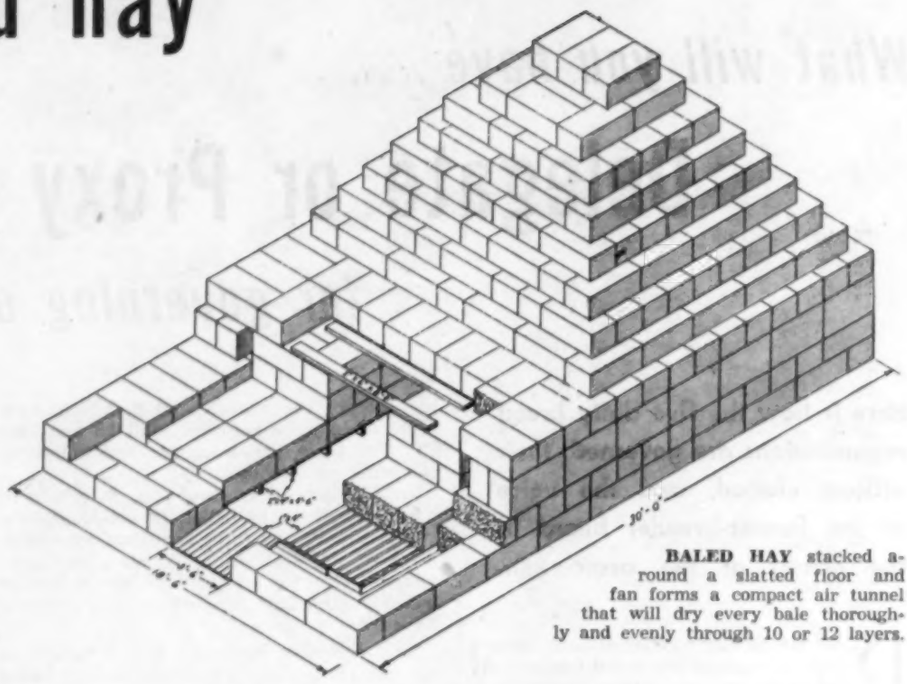
J. Homer Remsburg
President
Holstein-Friesian Association of America

D. T. Simons
President
American Jersey Cattle Club

Drying baled hay with a fan

If 25 per cent of the leaves never reach the barn, it might pay to consider drying in the stack or barn. Drying bales outside is popular in drier areas of the South and West.

by D. W. Teare



BALED HAY stacked around a slatted floor and fan forms a compact air tunnel that will dry every bale thoroughly and evenly through 10 or 12 layers.

IT HAS been estimated that 25 to 40 per cent of the food value in legume hay is lost each year. These losses are caused by sun, wind, rain, mold, heating, and leaf shattering. The shattering of leaves undoubtedly causes more waste than any one of the others. All of these losses can be greatly reduced or stopped completely by proper harvesting methods and artificial drying.

Hay grading standards require a leaf content of 40 per cent or more by weight for Number 1 alfalfa and only 25 per cent or more for Number 2 alfalfa. The leaf content is found by separating the leaves and stems of a typical hay sample and weighing them on an accurate scale.

A farmer making Number 1 alfalfa with 40 per cent leaves has lost 64.4 pounds of digestible protein. The standing plant averages 50 per cent leaves by weight. With hay having only 25 per cent leaves, 161 pounds of digestible protein has been lost.

In terms of pounds of soybean meal, it would take 157 pounds of meal worth $8.63 to make up the protein lost with the leaves in Number 1 alfalfa hay of 40 per cent leaf content.

The author of this article is a farm representative of the Rural Electrification Administration.

With only 25 per cent leaves in Number 2 alfalfa, the protein loss would be equal to 392.6 pounds of soybean meal worth $21.59. These costs are based on soybean meal having 41 per cent digestible protein and selling for $110 per ton. Digestible protein in alfalfa leaves was taken as 16.1 per cent. When losses of this kind are prevented, far more than the cost of drying is saved.

Check moisture content . . .

To prevent extensive losses of feed value, hay should be only partially cured in the field. It should then be raked and gathered before the moisture content is reduced below 35 per cent. This can be accomplished by cutting after the dew is off in the morning. In three to five hours the moisture content should drop to about 40 per cent in good haying weather. The rake should then be started and gathering done as rapidly as possible.

At moisture contents higher than 35 per cent the leaves are tough and will not shatter. Thus shattering losses are stopped by this haying method. When artificial drying is to follow, all field gathering and storing operations must be completed before the moisture content drops below 35 per cent if excessive food losses are to be stopped.

Either wire or twine tie balers that make a rectangular bale can be used. Since the green hay packs tightly, the baler should be set to tie a small bale. A 36-to 38-inch bale of 40 per cent moisture hay will weigh about 100 pounds. Such a bale will dry to about 70 pounds at 15 per cent moisture. In some cases it may be necessary to loosen the baler compression to keep the weight of bales to approximately 100 pounds. This also will let the air pass more readily through the bale when drying.

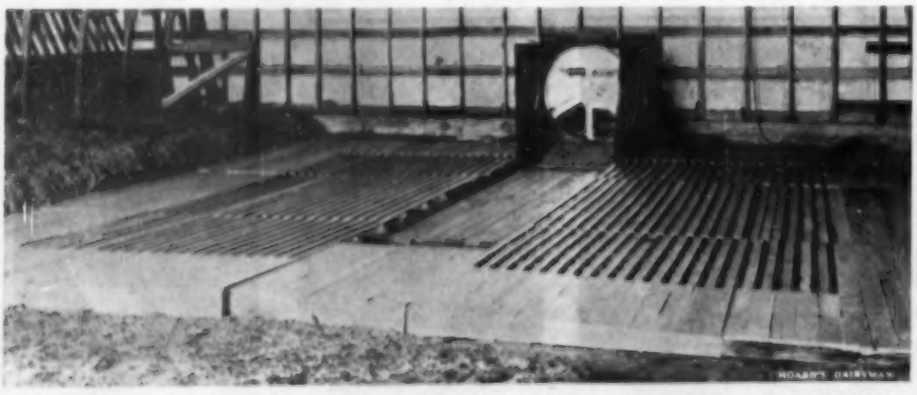
To dry baled hay successfully it will be necessary to follow rather closely the recommended methods and procedures. Select a fan and motor that will deliver from 20 to 25 cubic feet of air per minute, per square foot of floor space under the curing hay. The fan and motor must be able to develop a pressure of 1½ to 2 inches of water with the required volume. This is called static pressure. Reliable manufacturers will specify the motor size and fan speed at which their fans will deliver certain volumes of air at various static pressures.

Use slatted floor . . .

The method of obtaining uniform air distribution with a slatted floor can be used in a hay mow, hay shed, or in an outside stack. The slats are made of 1 x 4 inch lumber spaced 1 to 1½ inches apart and nailed to 2 x 4 inch runners spaced 2 feet apart. Nail a 1 x 4 across the outside ends of the runners to help seal the air and hold the air pressure. The two outside rows of bales also help hold the pressure since they rest on the floor. Turn the outside bales in the second or third layer on edge to level out the unevenness caused by the slatted floor.

Make the slatted floor in panels of 3 x 12; 4 x 12, or 6 x 12 feet sections. Use enough panels or limit the amount of hay to be dried so the pile will not be more than 10 or 12 layers of bales deep. Space the panels 3 to 4 feet apart down the center of the drier area, depending on the frame width of the fan.

The main air duct should be the same width as the fan housing and three layers of bales high. Thus the bales form the main duct. Use 2 x 6 inch by 8 feet timbers to bridge the main duct on the *(Turn to page 565)*



SLATTED FLOOR panels can be used as shown in a hay mow, hay shed, or in an outside hay stack. Solid portion of false floor can be eliminated and formed with bales of hay.

A FRESH STREAM of running water is ideal. Here trees provide cool shade in addition. Both are necessary for high production in any herd.

Don't neglect Pasture, shade, and water

Drought, heat, flies, and shade are not problems during the winter season. But when cows go to pasture, that's something else! Here are some timely tips.

by Melvin Scholl

FROM the first warm, sunny days in spring when the meadows begin to turn green, we look to the day when we can turn the cows to pasture. Who has not experienced the thrill of watching the cows and heifers race across the meadow in sheer delight at their first time out.

If the silo and haymow are running low, we may put the cows on grass before it is tall enough. This is poor business. If pasture does not get the proper start in the spring, it will never yield like it should during the long, uncertain season ahead.

Grass should be four or five inches tall before being grazed. Legumes should be several inches higher. If you are fortunate or wise enough to plan ahead to have rye pasture, you will have very early green feed in the spring.

Too many dairymen, once they have turned their cattle to pasture, pay little attention to their herds, outside of milking them. This, too, is short-sighted management. The summer months are, in many respects, the most difficult months in the year for maintaining a full milk flow. Hot and sultry days, dry weather, and troublesome flies make feeding and care of our cows more difficult than during the winter months when the animals are in the barn.

Good pasture not enough . . .

A little thought and planning now before summer comes will insure plenty of feed and comfort. The result is a normal milk flow throughout the hot months. You may think it unnecessary and unimportant to list here the three essentials of correct summer management of dairy cows. Some may say, "Every dairyman knows that!" Perhaps they do, or should, but the fact remains that many of our dairymen do not take the necessary steps to supply their herds with these three all-important needs: good pasture, shade, and water. Good pasture alone is not enough; shade and water likewise are paramount.

Then, too, our pastures should be as close to the milking barn as possible. A cow should not have to waste her energy in walking to and from pasture. Some dairy farmers are solving this problem by cutting and hauling the green feed to their cows. As yet this system, often called soilage, is still in the experimental stage in some areas and it, too, poses many problems.

For the most of us our milk cows will still walk to the fields and clip their own forage. However, where cows must graze for themselves, both water and shade must be provided near at hand. This is a must!

It is only within recent years that farmers have begun to realize that an acre of grass (and when we speak of grass anymore, we mean grass and legumes) can be the most productive and most profitable acre on the farm. Time was when a farmer thought that just pasturing a herd of cattle on virgin prairie would not only maintain its productivity, but also improve it. We know now this is not true. Constant grazing without additional cultivation and fertilization will rob the land almost as fast as crop-farming.

Now we are learning to treat pasture as a crop, but there is still too little attention given to correct grass-improving practices. The older bluegrass or June grass is now giving way to the newer grasses, brome and orchard principally. These have been found more productive, deeper-rooted, and hence more drought-resistant. Also these newer grasses, especially if clipped, are very succulent and well-liked by dairy cattle.

The ideal pasture should contain about 50 per cent grasses, with the balance consisting of legumes, preferably alfalfa and Ladino, where they will grow.

Clip and rotate pastures . . .

Besides clipping pastures to insure continued production, succulence, and palatability, the practice has other desirable effects. Weeds are held in control. The clippings serve as a mulch to keep the soil cool and moist during the hot months. To keep pastures in top-notch production, re-seeding and renovation should be a regular part of the program.

Rotating pastures is also important for increased grass yields, as well as to insure palatability and quality. The electric fence is an ideal aid in helping to accomplish this with little labor and at low cost. A rotation plan may be as involved or simple as the individual dairyman decides. It ranges from a division into two or three pastures in which cows are alternated every week or two, to the more complex system where cows are placed on fresh grass each day.

Watch for bloat . . .

In connection with pastures one other problem comes up—that of bloat. There are many theories advanced as to the cause of bloat; none of them to date proved absolutely true. With attention to a few details, however, the incidence of bloat will be small. The first of these preventives is one we have already mentioned—that of planning a pasture seeding with 50 per cent grasses, the balance legumes. (An added advantage of having a variety of grasses and legumes is that of providing the greatest amount of grazing over the longest period of time.)

While danger from bloat is greatest after a frost or rain, I am convinced that it is safest to allow cows on *(Turn to page 562)*

SINGLE CHISEL being used with smaller-type tractor. Though more time is required, it pays to loosen hard pan below plow layer.

FOUR CHISELS on tool bar of larger tractor are breaking up the compact soil under hay field; operation pays in higher crop yields.

How to loosen compact soil

If water stands on your soil, it may be hard, compact, and low in organic matter. Use a chisel to break up hard pans and keep cattle and machinery off in wet weather.

by Roy L. Donahue

THE ideal pasture soil is highly fertile, dark in color, and loam in texture. The ideal soil also has a crumb structure (like bread crumbs) and is free from compacted layers. The biggest job is to create or maintain a crumb structure and to prevent or control compacted soil layers.

There is really not much excuse now to be grazing dairy cows on pasture soils of low or unknown fertility because a soil testing service is available at a low cost in every state. Testing the soil in each pasture every three years and following the recommendations based upon the test guarantees that fertility will not be the factor limiting forage production. And never in history has lime and fertilizer been so cheap in relation to the dollar value of the increase in forage which they cause.

Dark-colored soils everywhere are the result when the organic matter content is high. But it isn't always true that the darker the color of the soil the more productive it is. Peat and muck soils are mostly organic matter, but they are too wet to be very productive unless they are artificially drained. Even when drained, organic soils have special problems of potash deficiency and commonly are very deficient in lime and many of the trace elements such as copper.

Increase organic matter . . .

The best pasture soils are dark in color as a result of frequent additions of fresh manure, dead grass, and legume leaves that are not grazed. The end-products of organic decay are very important for rapid plant growth, so keep a plentiful supply of organic matter decomposing on the surface of the pasture soil.

A loam soil is the ideal soil texture, but texture is one soil characteristic which we cannot change. If a pasture soil is mostly sand or has a gritty feel when rubbed between the thumb and forefinger, the soil is called loamy sand or sandy loam. A pasture soil which is sticky and plastic when wet is classified as a clay loam or a clay soil. Soils whose properties lie between those of the sands and clays are known as loams.

Dairymen have done a good job of using lime, fertilizers, manures, and crop residues. They likewise know pretty well what soil texture they have. But very few have paid any attention to the soil texture. Does the surface soil look like bread crumbs or a pie crust? When you dug a hole in the field last summer to bury that 'possum, was it crusty on top and hard digging at a depth of 6 to 12 inches?

Scientists tell us that soil structure refers to the grouping of soil particles into units or aggregates. If you have thrown clods at rabbits, you know what is meant by soil structure. The clods are aggregates which consist of sand, silt, and quite a lot of clay which are held together by some type of nature's cements. Nature's cements come from earthworm slime, bacterial bodies, fungi "roots," and plant roots, especially grass roots. The stickiness of clay also serves as a cement to hold soil aggregates together.

Soil scientists classify structural aggregates in three main groups based upon their shape, size, and strength. The main shapes which occur in pasture surface soils are crumb, granular, block-like, and plate-like. Sizes are coarse, medium, or fine. Strength refers to the ability of the structural unit or aggregate to resist crushing or breakdown with the impact of the raindrop. Descriptive terms for strength are weak, friable, and firm.

The structure of a virgin prairie pasture soil would be described as a friable, medium, crumb. With continuous plowing and tramping by the feet of cattle, the structure would deteriorate into firm, coarse, and plate-like on the surface and block-like in the plow layer. Below plow depth, the soil becomes compacted due to the weight of heavy tillage machinery and to the shearing action of the moldboard plow.

That is what is happening to all of our pasture soils everywhere. Originally, most of them did not have a soil structure as good as that found in the prairie soils, but all pasture soils are physically going downhill. I say, "all," but there may be a few dairymen who are actually improving the structure of their pasture soils.

Is your soil hard? . . .

The problem of compacted layers and how to cure them has been studied in nearly every state. The interest in this subject is ever increasing because:

1. With the rapid adoption of new kinds and higher rates of fertilizers, new and more insecticides, and new and better crop varieties, physical properties of the soil are now more frequently limiting crop growth than was the case a few years ago.
2. An increasing number of farmers have power units and deep-tillage implements and can do something about soil compaction.
3. Many soils are becoming more compact because of modern systems of intensive soil management.
4. Soils are worked harder now because of intensive cropping of clean-tilled crops or concentrated use of the better land for improved pastures.

Kinds of soil compaction . . .

According to the system of Eric Winters and Roy W. Simonson, compacted soils are classified as follows, with some modifications by the author.

Induced Pans—soils in which the layer that limits water movement or root penetration is the result of heavy machinery. These include the tillage pans (plow pans).

Induced Crusts—soils in which the surface

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CONTOUR CHISELING will loosen this soil enough to allow the rainwater to be absorbed instead of running off into nearby stream. Each chisel mark forms tiny dam to hold water.

GRASSLAND DRILL chisels, fertilizes, and seeds. It works well on old, permanent pastures.

inch or more is crusted and compacted due to the action of beating raindrops or to tramping by livestock.

Natural Pans—These are further classified into:

1. Clay pan horizons due to accumulations of clay.
2. Silt pan horizons due to accumulations of silt.
3. Indurated horizons due to natural cementation by iron, silica, or calcium carbonate.
4. Dispersed horizons due to alkali salts, mainly sodium.
5. Compacted horizons due to distribution of soil particle sizes which were readily compacted during geologic deposition.

Compacted layers are harmful . . .

Compacted layers restrict root penetration because:

1. There is not enough pore space to hold enough air and water at the same time for normal root growth.
2. Water does not move into the compacted layer fast enough when it rains. During wet periods, layers above will get soupy and the excess water will flow over the surface, taking the soil with it. The soupy layer above the compacted layer will be too wet for root growth.
3. During dry periods, soil layers beneath the compacted layer are often moist but plant roots cannot use the water because they cannot penetrate through the pan.
4. If the compacted layer is a pasture pan or a crust, all plant roots will be shallow and restricted for lack of sufficient air.

What causes compaction . . .

At the United States Tillage Research Laboratory in Auburn, Alabama, the moisture content of the soil which was best for tillage was also best for soil compaction by farm machinery. Tractor tires compacted the soil under these conditions to a depth of 9 inches, which is below the reach of normal farm tillage implements. Unless plowing were done at a depth of 9 inches, there would be a compacted layer formed just below plow depth.

In New York State, George R. Free found that during one season, an acre of potatoes was subjected to 25 miles of travel and packing action by farm implements. This is equivalent to covering each acre six times. He also reported that the more the organic matter in the soil, the less the soil was compacted by the farm implements.

Early subsoiling studies in the Great Plains Experiment Stations, as well as in Illinois, Pennsylvania, Mississippi, and Texas, resulted in, "little or no increase in crop yields." However, these experiments were conducted before the days of heavy farm machinery traffic and before the use of deep placement of fertilizers.

The work was also done at a time when some other factor probably limited crop yields. Corn yields of 40 bushels to the acre would probably show no response to deep tillage because moisture and fertility likely would be limiting, but yields of 200 bushels is another story. Higher corn yields per acre require more soil moisture which may be supplied by deep tillage and more fertilizer.

In Missouri, C. M. Woodruff and D. D. Smith report that shattered subsoils which had been limed resulted in less winterkilling of clover. The beneficial effects were noticed for three years, but had disappeared at the end of six years.

Chisel plow pan every 12 inches . . .

C. H. Diebold reports that in New Mexico, Colorado, and Utah, chiseling through the plow pan of loam soils at 1-foot intervals reduced run-off losses of water more than did the use of sweeps or one-way disks. Chiseling at intervals of 5 feet or more was not effective.

The moisture content at time of chiseling is highly important. In Colorado, when the deep tillage was carried out on moist loam soils, the plow pan was destroyed but a new pan was formed at the bottom of the chisel marks. Chiseling when the soil was dry overcame this objection and resulted in more water entering the soil for use by plants.

Results similar to the above were found on cotton soils in the Mississippi Delta. Chiseling during periods of normal soil moisture gave no beneficial results, but chiseling when the soil was dry increased the yield of cotton, especially in a dry year. Similar results were obtained with corn soils.

J. W. Fitts, in the west, chiseled and chemically treated alkali spots to encourage deeper rooting of alfalfa. Deep tillage and deep placement of sulfur resulted in the rooting of alfalfa from the original 9-inch depth to a depth below 40 inches.

F. B. Smith, Head, Department of Soils at the University of Florida, reports that on Leon fine sand, which is acid to great depths and has a natural indurated B horizon, chiseling and placement of lime to depths of 24 inches increased the number and depth of Ladino clover roots. This provided more drought resistance for the Ladino clover.

Indiana experimental work shows promise on increased growth of corn roots as a result of chiseling and deep placement of lime and fertilizers.

New York conducted some research on the deep placement of lime in relation to the yield of alfalfa. The soil was Volusia silt loam which has been developed from acid shale. The results are:

Treatment	Yield of alfalfa in tons per acre
4 tons lime in top 6 inches	7.7
4 tons lime in top 12 inches	9.0
4 tons lime in top 24 inches	8.1

These data indicate that the incorporation of lime in the top 12 inches of soil proved most desirable. This is not surprising inasmuch as tillage pans seldom extend below 9 inches.

Many reports from other states indicate that chiseling alone seldom gives much growth response, but chiseling plus deep placement of lime and fertilizers usually result in increased crop yields, especially in dry seasons.

Results look good . . .

In New Hampshire, a regional project on the effects of chiseling and the deep placement of lime and fertilizers was initiated by Louis Kardos and reported by Richard Thomas.

The soil was a Paxton loam which has a natural compacted platy layer at a depth of 12 to 18 inches. Chiseling was done at 12-and 18-inch depths and spaced at 1 and 3 feet apart. Lime and fertilizer variables were then placed at these depths and some chiseling was done without lime or fertilizer.

One of the most interesting results obtained was an increase in organic matter at the bottom of the chisel cuts. At the 15-inch sampling depth, organic matter content was .4 per cent between the chisel cuts but 2.4 per cent in the chisel marks. Undoubtedly, surface soil high in organic matter fell into the chisel cuts during the process of chiseling. This resulted in desirable soil structure all along the chisel marks and lasted for at least a year without deterioration.

Results a year later have proved that chiseling increased significantly the growth of alfalfa and Ladino clover. Better stands were obtained where chiseling was done at 1-foot than at 3-foot intervals.

Greenhouse tests conducted as a companion experiment showed that sudan grass roots penetrated compacted soils *(Turn to page 564)*

GOPHER-INFESTED pastures, hay fields are found on many farms.

GOPHERS start work in the spring and cost farmers time and money.
—Photo courtesy Iowa State Conservation Commission.

Poison those gophers now

Poisoning is quicker and more effective than trapping. Here's how to go about preparing, placing bait.

by Roy Reiman

POISONED BAITS are easy to prepare and use. Any firm root vegetable can be cut in strips as shown and one quart of bait will poison 2 acres of average gopher infestation.

PUT FRESHLY CUT BAITS in a paper sack and dust with 1/16 ounce of powdered strychnine, mixed with flour, per quart of bait. Shake the sack vigorously to distribute the poison.

POISON ONLY TWO freshest mounds in a mound system. Locate main runway, 4 to 12 inches away from flat or indented side and it may be 3 to 12 inches below the surface.

WITHDRAW THE PROBE — broom handle makes a good one — without pulling a lot of soil with it. Do this by placing your feet, one on each side of probe. Drop bait into the hole.

CLOSE PROBE HOLE with the heel after placing the bait. Pocket gophers become suspicious and excited if light enters the main runway and may close runway without finding the bait.

RAKE DOWN all the mounds. They scatter easily when fresh. If any new mounds appear, poisoning should be repeated with fresh bait. Burn or bury unused bait; then wash hands well.

THE pocket gopher is an industrious little fellow. Through his perennial activities, he's managed to make gopher-infested pastures and hay fields a common sight.

And whether farmers know it or not, he's costing them time, money, and soil every year he operates. Here's how:

He costs money by reducing yields. The mounds of dirt thrown out by each gopher average more than 1 square foot in area. If you have 100 mounds in a field, that means you have 100 square feet where no vegetation can grow.

The pocket gopher's appetite and instinct also causes an invisible loss of forage. He lives on roots. In his continual search for food, he may stretch his tunnels until they're more than ½ mile long by the end of the summer. This causes an estimated 5 to 10 per cent forage loss.

You lose time as well as money when you run machinery over a field infested with pocket gophers. Either your mower sickle gouges into the mounds, or you cut the hay high and lose forage. Your tractors and wagons are jolted and damaged, and riding the machines is tiring and dangerous.

On rolling ground, you lose soil when water seeps into the gopher's runways and begins to cut gullies.

Though these losses seem small, they do reduce the efficiency of your farming operation. According to Harold Gunderson, extension entomologist at Iowa State College, one of the best times to control gophers is in the spring when vegetation doesn't hide the mounds.

Trapping and poisoning are both common preventions, but Gunderson thinks poisoning is by far the quickest and most effective method.

Alfalfa, clover, timothy, and bluegrass sods are preferred by gophers. However, fencerows, roadsides, and waste areas usually have light to moderate pocket gopher populations, too. If control measures aren't used in these areas, treated fields soon become re-infested.

Gunderson points out that as large an area as possible must be treated to keep re-infestation low. He says gophers can be controlled by individual effort for only a short time. To really make control effective, community-wide cooperative action is needed.

THE END

Can we afford to MECHANIZE haymaking?

If we do, we are forced to go all the way for top-quality hay. If we bale, we should buy a crusher — if we chop, we should buy a mow drier to dry it.

by J. M. Scholl

OVER half the farms in this country grow hay and every kind of method is used in its harvesting, from the very old fashioned to the most modern machinery. Mechanization for hay has lagged behind that for other crops. It has been difficult to develop machinery and methods that are economically practical for many farmers to buy and to use on a crop of relatively low cash value.

There appears to be no one hay-harvesting method that is best for all farms. Some methods may reduce costs more than others, but many operators prefer a haying method which reduces the amount of hard work and time involved.

Quality hay is produced only when the harvesting is done quickly. Because of this, modern methods such as field chopping and pick-up baling have become popular. Both of these methods have low labor requirements, but the cost per ton is high unless large tonnages are harvested annually.

Investments, labor, and harvesting costs for different hay making methods have been compared by agricultural economists in several independent studies. Some of these findings are summarized here.

Results in Michigan . . .

The average amount of hay moved from field to storage in studies in Michigan varied from 1.4 to 3 tons, depending on method. With the hayloader and buckrake the average was 1.4 to 1.6 tons per hour compared with 1.5 to 3.0 tons using baler and field chopper.

Costs of haymaking, with 1953 costs, varied considerably. With modern methods they ranged from $4.50 to $8.37; with hayloader and buckrake, costs were $4.52 and $4.55, respectively. In this study, better-than-average performance gained through careful organization and planning had harvesting costs 5 to 19 per cent below the average.

The field chopper had a low labor requirement but, like the baler, the cost per ton was high unless it was used for a large number of tons annually. The key to high performance was to keep the chopper operating as much as possible.

It was suggested that farmers having less than 50 tons of hay to harvest annually would do well to consider the buckrake and hayloader or to custom hire their haying. Where haying operations are on a larger scale and hay is to be sold or moved from one place to another, baling has an advantage.

Enough tonnage or hours of work must be provided for each harvesting method to keep costs low. With too little work to justify certain haying equipment, the work could be custom hired or enough additional work obtained by doing custom work for others.

Custom rates charged for baling and chopping hay were similar to the costs shown for farmers who owned their own equipment. Custom operators, however, harvested from 1½ to 3 times the tonnage harvested by owners.

Thirteen-state survey . . .

Probably the most complete study of hay harvesting methods and costs were made by R. E. Marx and J. W. Birkhead, agricultural economists with the Bureau of Agricultural Economics. The study is based chiefly on field surveys conducted during the 1945 haying season on 1,632 farms located in 17 selected areas in 13 states. It must be kept in mind that 1945 machinery and labor costs were used.

Marx and Birkhead state that each method has some definite place in hay making, depending upon climate, kind, quality, and use made of the hay and available labor and capital. They showed that with a loader and power fork it might take a farmer who has only 20 or 30 tons of hay as much as 4 or 5 hours per ton to harvest it. They do not think he could afford to invest in an automatic-tie pickup baler that would harvest hay with only two hours of labor per ton, unless he could do custom work for others. His investment in the first case would be around $435 compared to about $2,200 with the baler.

Report from New York . . .

A study of forage handling on 326 New York dairy farms in 1952 was reported in Farm Research, Cornell University Agricultural Experiment Station, by L. S. Fife and R. J. Ames. The costs of harvesting forage were lowest on farms that used only the field chopper. One man, on the average, could chop and load dry hay with a field chopper as fast as two men could bale and load hay on a trailing wagon, and chopping made the work easier. Chopped hay was fed as quickly as baled hay.

Results in Wisconsin . . .

Harvesting hay crops for silage with field choppers took only about one-half as much time as the hayloader-silo filler method and the work was much easier. The stationary chopper method was best adapted to small farms with a good supply of able-bodied help, and on which cash expenses must be kept low.

Estimates in 1952 indicated that more than three-fourths of the farms making grass silage harvested the crops with a field chopper. Farmers using field choppers moved their crops from windrow to silo in about half the time that the stationary-chopper method required.

Mechanize hay making . . .

E. L. Barger, formerly of Iowa State College, has found that the mechanization of forage handling has been slow compared to grain crops. For example, wheat is now being produced with as little as 1½ man hours per acre and corn with about 4 man hours.

Hay harvesting under favorable conditions requires 3 to 5 man hours per acre per cutting and with 2 or 3 cuttings, the labor may frequently be 3 times as *(Turn to page 555)*

CRUSHERS cut our drying time in half. The stems, when crushed, dry as quickly as the leaves thus causing less loss of the leaves.

HAY BALERS put our hay in convenient packages. Keeping the bales small and loose will result in easier handling, storing, and feeding.

CHOPPERS offer one of the easiest ways of making hay. To make top-quality hay in this way, a mow drier is almost a necessity.

A MOW DRIER can be the most profitable piece of equipment on a farm. The increased quality of hay will pay cost of installation.

The author is a member of the agronomy department, Iowa State College, Ames.

1955 custom rates for machinery

These custom rates can be used as the basis for determining a charge when there is no common rate in your own particular area.

by Wayne Ritchie

CUSTOM rates for most farm operations will be very little different this year. The annual survey, conducted by Doane Agricultural Service, indicates that combining may be somewhat cheaper while almost all other rates will remain steady.

The custom charges given in these tables are the most common rates reported to us by Doane farm managers, correspondents, and agricultural colleges early this year. These are the rates that our reporters expect to pay for custom work throughout this year. Since they are sent in so early in the year they are based, to some extent, on last year's experience.

How to use tables . . .

The custom rate tables should be used as a basis for determining a charge when no existing rate is common in your community. If there is a "going" rate for work in your neighborhood then generally that is the rate to use. It most accurately reflects the interplay of many factors which influence custom rates. Some of these factors would be size of fields, crop yields, size of equipment common to a specific area, and other local conditions.

If there is no "going" rate or if the rate charged appears to be out of line with prices quoted in these tables, then it is well to do some figuring. Take the rate listed and consider it in light of your own community.

Remember that these rates are usually reported from areas where custom work is quite common. If very little custom work is done in your area, it is well to figure that the rate will be somewhat higher than the table indicates. The old supply and demand theory applies to custom work, too.

Another thing to consider is type of equipment. Generally these rates are based on the use of fairly large equipment. If you are hiring plowing, don't feel that you can get it done for the rate quoted if the custom operators in your area have only small one-bottom tractors. They have to charge more since their labor is higher. But if both large and small operators are available for hire, there shouldn't be any difference in their prices.

Finally, unless otherwise indicated, these rates include materials, fuel, and labor.

The author is a member of the editorial staff of Doane Agricultural Digest.

HARVESTING

JOB	BASIS OF CHARGE	NORTH CENTRAL	NORTH EAST	SOUTH	MOUNTAIN	PACIFIC
Corn picking	BUSHEL	$ .08- .10	$ .12- .16	$ .13- .16		$14.50 Ton
Corn picking	ACRE	4.00- 6.00	7.00-12.00	2.50- 5.00	$ 3.50	10.00
Combining						
Oats and wheat	Acre	4.00- 5.00	5.00- 7.00	3.50- 4.50	4.00- 5.00	6.00
Soybeans	Acre	4.00- 5.50	5.00- 7.00	6.00-10.00	-	-
Soybeans	Share		-	1/4 to 1/5	-	-
Alfalfa and clover seed	Acre	5.00 or ⅓ share	6.00	5.00- 6.50	5.00- 6.00	5.50- 6.00
Flax	Acre	4.50- 5.00	-	4.50	4.50	5.50- 6.50
Lespedeza	Acre	5.00	-	5.00-10.00	-	-
Fescue	Acre	6.00- 8.50	-	6.00- 8.50	-	-
Grain sorghum	Acre	4.00	-	3.50- 4.50	6.00	5.50
Rice	Cwt.	-	-	.55	-	.50
Barley	Acre	4.00- 5.00	5.00- 7.00	3.00- 4.50	3.50- 4.50	5.50- 6.00
Dry beans	Acre	7.00 or .20 per bu.	8.50	-	5.00- 6.00	10.00
Hauling and cribbing corn	Bushel	.03- .04	.04	.05- .08	-	-
Hauling small grain	Bushel	.03- .05	.05	.05	.05	.10-.15(cwt.)
Windrowing small grain	Acre	1.00- 1.50	1.50	1.50	-	2.00- 3.00
Shelling corn	Bushel	.015- .04	2.00 T	.05- .10	3.00 T	2.50 T
Shelling and delivering govt. corn	Bushel	.06- .10	-	-	-	-
Trucking corn to elevator	Bushel	.025- .10	-	-	-	-
Field chopping silage; chopper and blower with:						
1 man, 3 wagons, 1 tractor	Hour	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00	10.00-12.00
2 men, 2 wagons, 2 tractors	Hour	13.00-14.00	13.00-14.00	13.00-14.00	13.00-14.00	13.00-14.00
2-4 men, truck, 2 tractors	Hour	14.00-16.00	14.00-16.00	14.00-16.00	14.00-16.00	14.00-16.00
Silo Filling						
Any means	Ton	1.50	2.50	2.00	2.00	2.00
Stationary cutter-blower						
12 foot silo	Foot	1.00	1.00	1.50- 4.00	1.00	1.00
14 foot silo	Foot	1.25	1.25	1.75- 5.00	1.25	1.25
Field chopper						
16 foot silo	Foot	3.75	3.75	4.00- 7.00	3.75	3.75
14 foot silo	Foot	3.75	3.75	3.00- 6.00	3.75	3.75
Trench silo filling						
Chopping	Ton	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00
Hauling	Ton	1.00	1.00	1.00	1.00	1.00
Packing	Ton	.50- 1.00	.50- 1.00	.50- 1.00	.50- 1.00	.50- 1.00
Field chopping hay, corn, sorghum to wagons only	Hour	7.00-10.00	7.00-10.00	7.00-10.00	10.00	9.00-12.00
Elevating hay	Bale	.01- .02	.01- .02	.01- .02	.01- .02	.01- .02
Cotton picking (machine)	Cwt.	-	-	2.00- 2.25	2.00- 3.00	2.00- 2.25
Cotton picking (hand)	Cwt.	-	-	1.50- 3.00	2.00- 2.50	3.00- 4.00
Cotton stripping	Cwt.	-	-	1.00	1.00- 1.50	-
Digging potatoes	Hour	4.00	4.00	4.00	4.00	4.00
Digging potatoes	Acre	5.50	5.50	5.50	7.00	7.00

HAYING

Mowing hay	Acre	1.00- 1.50	1.75	.75- 1.50	1.00- 1.50	1.50
Mowing hay	Hour	2.50- 3.00	3.25	3.00	3.00	3.00
Mowing pasture	Acre	1.50- 3.00	1.75- 2.00	1.50- 2.00	-	-
Raking hay (side-delivery)	Acre	1.00	1.00	.50- 1.00	.75- 1.25	1.50
Pickup baling, hay	Ton	4.00- 5.00	4.00- 5.00	4.50- 6.00	4.50	3.50- 4.00
Twine	Bale	.10- .14	.11- .14	.12- .14	.13- .15	-
Wire	Bale	.12- .16	.12- .15	.14- .16	.15- .18	-
Hound	Bale	.10- .13	.10 .13	.13- .15	.11- .13	-
Bale loader or pull wagon	Bale	.01- .02	.01- .02	.02	.01- .02	-
Hauling bales to barn and storing	Bale	.07- .10	.07- .10	.06- .10	.07- .10	2.00 ton
Haying, cut, rake and stack	Ton	-	-	-	7.50	-
Haying, cut, rake, bale, store	Bale	-	.22- .27	-	-	-

PLOWING AND CULTIVATING

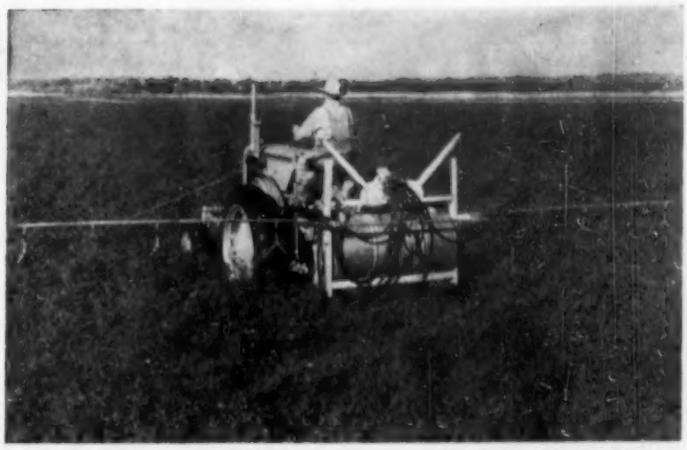
Plowing, mold board plow						
Spring	Acre	3.50- 4.50	(Hour) 4.00	3.00- 5.00	3.50- 4.00	-
Fall	Acre	4.00- 5.00	4.00	4.00- 5.00	-	-
Sod	Acre	4.00- 5.00	-	-	3.50- 6.00	-
Disk, plow	Acre	3.50	3.00	3.00- 4.00	2.50- 3.00	5.00- 7.00
one-way	Acre	-	-	-	2.25- 3.00	5.00- 6.00
Disking tandem	Acre	1.25- 1.50	2.50	2.00	1.25- 1.50	1.50- 2.50
offset	Acre	-	-	2.00- 2.50	-	1.75
Disking, with harrow	Acre	1.50- 1.75	-	2.25	1.25- 1.50	-
Harrowing						
Spike tooth	Acre	.50- 1.00	1.50	.50- 1.00	.75- 1.00	-
Spring tooth	Acre	1.50	1.50	2.00	-	2.50
Cultivating						
Sweep cultivator	Acre	1.25- 1.50	1.75	1.25- 2.00	1.00- 1.50	2.25- 2.75
Rotary hoe	Acre	.50- 1.00	.75- 1.00	.75- 1.00	-	-
Weeder	Acre	.50- 1.00	.75- 1.00	1.00	-	-
Stalk cutter, power take-off	Acre	2.50	2.50	2.50	1.25- 1.50	2.00- 2.50
Cultipacker	Acre	.50- 1.00	1.00	1.50	-	2.00
Pulling bush and bog	Acre	3.50- 4.00	3.50- 4.50	3.50- 4.50	-	-
Summer fallowing						
Rodweeder	Acre	-	-	-	1.00	-
Graham Hoeme	Acre	3.00- 7.00	-	3.00- 4.00	2.00- 4.00	-
Duckfoot	Acre	-	-	-	2.50- 3.50	-
Bordering	Acre	-	-	-	.75	.75
Chiseling	Acre	4.00- 7.00	-	-	5.00- 5.50	5.00- 6.00
Plowing, deep	Acre	5.00- 6.00	-	5.00	4.50	-

Continued on page 563

How to control Legume Insects

These chewing and sucking insects can be stopped with chemical sprays before they stunt your legumes and cut yields in half.

by Clarence E. White



BOOM SPRAYER and tank, with correct chemical, mounted on tractor mean sure death to leafhoppers that are infesting this alfalfa field.

THERE are many different species of insects that damage legumes. The number is far too great to be covered in an article of this kind; therefore, this article is confined to a discussion of eight of the more important kinds of insects.

The clover leaf weevil larvae begin feeding on the clover leaves very early in the spring. They are small, green, legless "worms," each with a light-colored stripe running down the middle of its back. During the daytime, they hide in the crown of a clover plant or in the trash under the plant, and at night come out to feed on the leaves. They may eat from the margins of the leaves or they may eat holes through the leaves. Their feeding can greatly retard the growth of the plants.

Treated clover 5 inches higher . . .

In the spring of 1953, when untreated clover was measuring 5 to 6 inches in height at Urbana, Illinois, treated clover was measuring 10 to 10½ inches in height. Think what a difference that would make in the amount of pasture and hay from the treated fields.

The two fields were side by side in the same area. The only difference in management was that the treated field received an application of 1½ pounds of DDT per acre in early September 1952, while the untreated field received no insecticide treatment. (The amounts of each insecticide given in this article are for the actual active ingredient.) There were about 100 clover leaf weevil larvae per square foot in the untreated area and only 2 to 3 per square foot in the treated area.

The untreated plants, besides being shorter than the treated, had an unthrifty appearance, a scarcity of leaves, ragged leaf margins, and many holes eaten through the leaves. Some leaves were almost entirely eaten away.

In contrast, the treated plants had a healthy appearance and an abundance of leaves. Scarcely any holes could be found in the leaf blades. Some of the difference in height of the plants may have been due to the work of spittlebugs, which also were present in the untreated area but not in the treated area.

Control with DDT . . .

The clover leaf weevil can be controlled by spraying either in the spring or in the fall. One and one-half pounds of DDT per acre applied the last of August or first of September has given excellent control in Illinois. Spring treatments with 1 pound of DDT or 0.3 of a pound of benzene-hexachloride or Lindane will also give good control. If DDT is applied in the spring, it should be put on while the clover plants are 3 to 4 inches or less in height in order to avoid the danger of residues in the hay crop. Lindane or benzene-hexachloride can be applied safely until the clover reaches a height of 8 inches.

The longer treatment is delayed in the spring, the more damage will be done by the larvae and the less benefit will be derived from spraying. A field should not be pastured for five weeks after DDT has been applied and not for three weeks after Lindane or benzene-hexachloride has been used.

Fall treatments have certain advantages over spring treatments.

First, they come at a time when the farmer or dairyman is not too busy with other work.

Second, the adult clover leaf weevil is killed before it can lay its eggs; therefore no damage is done by larvae in the spring. Some damage is done if treatments are delayed until spring.

Third, fall treatments will result in a luxuriant growth of clover which can be pastured early in the spring without any danger of residues.

Fourth, fall treatments are as good as spring treatments as far as hay yield is concerned. The fall treatments may be looked upon as preventive measures, the spring treatments as cures.

Treat in spring or fall . . .

The meadow spittlebug does its damage while it is in the young or nymph stage. The nymph, when it emerges from the egg the latter half of April, is a small, orange-yellow insect about 1/16 of an inch long.

Soon after emerging from the egg, it inserts its beak into a plant stem or leaf and begins to suck out the plant sap. Very shortly after it begins to suck sap, it will also start to cover its body with a small, white, frothy mass of spittle.

As the nymph grows older, it gradually turns green and gets to be about ¼ of an inch in length. The spittle mass becomes large and noticeable. The constant drain of sap stunts the plant and causes a reduction of hay yield.

Like the clover leaf weevil, spittlebugs can be controlled by spraying in the spring or in the fall. Fall treatments will kill the adults before they lay their eggs. The adults are brown, robust, jumping insects about ¼ of an inch long.

One and one-half pounds of DDT per acre applied the last of August or first of September will give good control of this insect. Spring treatments of 0.3 of a pound of Lindane or benzene- *(Turn to page 560)*

The author is a member of the agronomy department, University of Illinois, Urbana.

—Photos Courtesy Illinois Natural History Survey.

TARNISHED PLANT BUG, adult, L., and young nymph. DDT can be used to control this sap sucker.
—Painting by Dr. Paul Suranyi

ALFALFA PLANT BUG, adult on L. Alfalfa fields can be sprayed with either DDT, toxaphene, or chlordane.
—Painting by Dr. Paul Suranyi

CLOVER WEEVIL larvae feasting on leaves will greatly retard the plant growth. Fall spraying best.

SPITTLEBUGS cover themselves with mass of spittle. They weaken plant by sucking out the sap.

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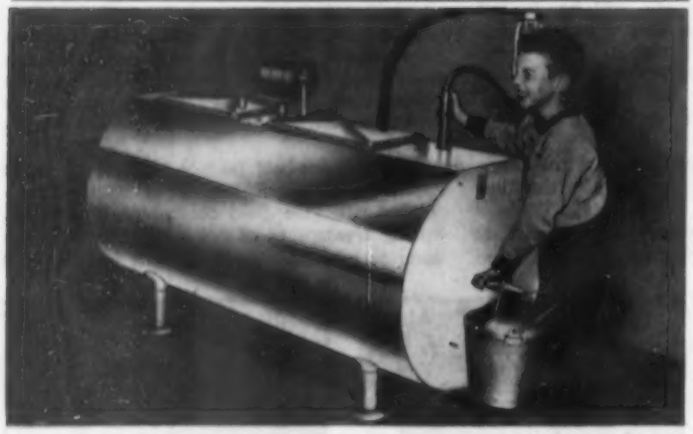

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FEEDING

by N. N. Allen

Time to think about next winter's feed

Getting leaves in the barn will save hundreds of dollars of protein next winter. First cutting is highest in protein if cut at right time.

IT MAY seem strange to be talking about winter feeding when the cows have just been on pasture for a short time, but good feeding is not a day-to-day proposition. It is time right now to start getting the feed ready for next winter.

What happens during the next few weeks is going to be a very important factor in determining the returns from the herd during the months when the cows are spending most of their time in the barn.

What is in the crop? . . .

First, let us take a look at the crop as it stands in the field at cutting time. If it is mostly clover, alfalfa, or a similar legume, it is high in protein. If it is in early to mid-blossom stage, it is also low in fiber and high in the nutrients which supply energy.

In short, if we can get it to the cows without losing any of the nutrients, it will be an excellent feed that will require less grain and less protein to supplement it.

If we cut a sample, dry it carefully, then separate the leaves from the stems, we will find that we have about equal weights of each. But if we were to analyze the leaves and the stems separately we would find that about two-thirds of the protein is in the leaves. They will contain about 60 per cent of the energy value.

The entire plant will make hay that has as much protein as bran. If we can feed hay like this dried sample, we will not need to worry much about protein in the grain mix. Even corn and oats will have plenty of protein. If the hay is sun-cured with bright green color, it will take care of the Vitamin A and D, and will furnish plenty of calcium or lime.

This description may sound like second or third cutting. Interestingly enough, for the samples we have checked, the first crop has usually carried a higher percentage of leaves than the second. The only samples of first crop which had less than 50 per cent leaves were those from alfalfa which had lodged, causing the lower leaves to turn yellow and fall off before it was cut.

It still sounds like there must be something wrong. Hay with 50 per cent leaves will grade United States No. 1, leafy, the highest grade. We seldom see hay of this quality coming from the hay mow of dairy barns. On the average, the hay fed will not average better than United States No 2, which has only about 30 per cent leaves.

If the crop as it grew had 50 per cent leaves (dry basis) and the hay has only 30, what has become of the rest. The answer is simple. Look at the ground after the hay is in the barn. You will see that it is covered with leaves that have shattered as the hay was being handled.

It is pretty obvious that the loss has been heavy, but just how much has actually been lost when No. 2 hay is made from a No. 1 crop? Perhaps we can figure it out.

If we harvest 2 tons of No. 2 hay per acre, we will have 70 per cent of 4,000 pounds, or 2,800 pounds of stems and 30 per cent of 4,000 or 1,200 pounds of leaves. But when it was cut, there were just as many pounds of leaves as of stems, or 2,800 pounds.

If there were 2,800 pounds to start with, and there are only 1,200 pounds left when it gets to the barn, 1,600 pounds have been lost. It looks like a lot, but when we went out to the field and checked, the leaves were there. Look for yourself and you will find them, too.

Nutrient loss very heavy . . .

If we just look at the comparative analyses of the two grades of hay, the loss does not look to be very great. But we must remember that we lost almost 1 ton of hay. There were almost 3 tons on the field, and the hay we lost was the 'cream' of the crop. The 1,600 pounds of leaves had about 350 pounds of protein, as much as half a ton of linseed meal. And they had as much energy as 15 to 20 bushels of corn. Such a loss is certainly worth saving.

There will always be some loss, but most of it can be avoided. Improved equipment and methods make it possible to keep the losses down to a minimum. For a 20-acre field of alfalfa it will take almost $1,000 worth of oil meal to replace the protein loss, and it will not fully replace the energy or total digestible nutrients lost. When we look at it this way, if some new equipment is necessary to do the job, it can pay for itself very quickly.

For one farm, the best answer may be different from that for another farm. One may do it by placing more emphasis on grass silage. Another may find a barn dryer his best way to beat the weather man.

The pastures usually are not very productive during the hot, dry weeks of late summer. If we want good grazing, we must plan for it in advance by seeding a hot weather crop to come on when the other pastures are not producing. Sudan grass is a good hot weather grazing crop for many sections. Other crops may be a better bet for other areas.

Can we afford to mechanize haymaking?

(Continued from page 551)

Table 1. Hay-harvesting methods compared on the basis of 1953 cost of equipment and 1946-50 performance records (Michigan).

Method	Average investment in equipment	Tons hay harvested annually (estimated)	Tons hay, field to mow in 1 hr.	Size of crew av. no. of men	Man hours per ton	Est. av. cost per ton, windrow into storage
Hayloader (Long hay)	$ 871	50	1.4	3	2.3	$4.52
Buckrake (Long hay)	468	40	1.6	3	1.5	4.55
Baler (Automatic)	3618	300	2.2	3-4½	2.2	5.71
Hay crusher and baler	4522	175	2.2	3-4	2.2	6.71
Field choppers:						
Small	2993	150	1.5	3-4	1.5	5.12
Large	4319	300	3.0	3-4	1.6	4.50
Barn driers:						
Small chopper	3958		1.5	3-4	1.5	8.37
Large chopper	5284		3.0	3-4	1.6	7.75
Grass silage:*						
Small chopper	2993	250	3.3	3-4	1.7	4.07
Large chopper	4319	375	5.0	3-4	1.6	3.52

*Basis of 68 per cent moisture; to place costs on an approximate comparable basis as other hays at 20 per cent moisture, multiply grass silage costs by 2.6.

great as for the major grain crops. Only recently have methods been developed that completely eliminate hand work and these are in only limited use.

Barger showed that the time required to handle a ton of hay from standing crop to barn mow with automatic baler was 2.52 man hours.

In this report a table compiled from studies in Maine, Ohio and Iowa shows that over 3 man hours per ton were required to handle dry hay from windrow to storage where hay loader, racks and barn fork and track were used. By best methods, chopped hay could be stored with an expenditure of from 1 to 1.5 man hours per ton and with this method, hay making was completely mechanized.

The baling operation has been developed into a highly efficient operation. New developments make it possible to bale up to 7 tons per hour; 8 bales per minute have been turned out. About 2 man hours per ton were required to handle a ton of baled hay from windrow into storage with a crew of 6 men.

The cost of harvesting forage by field chopping was shown to be reduced by spreading the cost over additional crops. With equipment costs and capacities of field chopper and balers being similar, something over 100 tons annually was indicated as being necessary to make these methods economical.

Too much low quality . . .

Handling of forages is complicated by the nature of the product. It is bulky and often grown on steep rolling land unfavorable to machine operation. If harvesting is not timely or if delays occur before the forage goes into storage, quality is reduced.

Farm operators who are short of help and who cannot depend on getting a custom operator at the right time have the alternative of buying their own labor-saving equipment. On small farms, where equipment is used to harvest only limited acreages, cash expenses are considerably increased by owning an outfit and the cost per hour of labor saved is high.

The cost can be reduced by harvesting as many other crops with the equipment as possible. Substantial savings in the cost of owning modern harvesting equipment may result by using the outfit on other farms. This is often accomplished by doing work for neighbors on a custom basis, by sharing ownership or by exchanging machine work. However, these savings can be more than offset by losses due to delayed harvesting and weather damage if attempts are made to harvest too many acres. **THE END**

Table 2. Comparison of outstanding features of specified methods of harvesting hay in 1945 with equipment bought in 1945 or earlier.

Method of harvesting	Average investment in equipment	Average amount of hay handled per crew hour	Typical size of crew	Average man labor per ton		Av. total haymaking cost incl. mowing & raking
	dollars	tons	number	man-hrs.		cost/ton
Stored in barns						
Load and unload by hand	158	0.7	3	4.5		$4.66
Load by hand; unload with power fork	208	.7	3	4.0		4.31
Load with loader; unload by hand	387	.6	2	3.5		4.10
Load with loader; unload with power fork	437	1.1	3	2.8		3.54
Buckrake to barn; store with power fork	373	1.6	3	1.8		3.15
Stored in stack						
Load and unload by hand	158	.7	3	4.5		4.66
Buckrake to mechanical stacker	538	2.0	3	1.5		3.15
Buck stacker	578	3.0	3	1.0		2.40
				Baling only	To storage	
Baled						
Buckrake to stationary baler	1,016	1.7	6	3.5	4.6	6.72
Automatic-tie pickup baler	2,253	2.6	1	0.5	2.0	4.33
3-man pickup baler	1,466	2.4	3	1.2	2.7	4.82
Chopped						
Stationary chopper	809	1.0	2	2.1		3.37
Pick-up chopper	2,342	3.5	4	1.1		3.34
Ensiled		Silage			Per ton of silage	
Loader, ensilage cutter	629	2.6	3	1.2		1.56
Pick-up chopper	2,889	10.0	4	0.4		1.75

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EDITORIAL COMMENT

THAT EARLY-HAYING CHALLENGE

WE HOPE you read Dr. Reid's article, "You Save $125 Per Month," on page 543 of this issue. By far, this is one of the most important articles we have published in recent months. It is so jam-packed with surprising information that we wish to add emphasis to it here.

The table on the protein and t.d.n. contents of hay cut at different times is perhaps more revealing than the casual reader may appreciate. Let's look at it from a slightly different point of view.

If we compare later cuttings with the June 1 cutting, here are the approximate losses in protein and total digestible nutrients:

	June 15	July 1	July 15	Second cutting
		Per cent		
Protein loss	25	50	66	25
T.D.N. loss	10	20	30	17

These figures vary a bit for legumes and grasses but surprisingly little from what we might expect.

Perhaps this information, revealed in this article, explains why so many dairy farmers who are keen feeders prefer first-cutting hay to second-cutting hay. Assuming that we get all of the plant into the barn, that good second-cutting is still not anywhere near the feed of a good first-cutting put up about June 1 in the area common to Ithaca, New York. The second-cutting has 25 per cent less protein and 17 per cent less total digestible nutrients.

This article should encourage every dairy farmer to get into the fields now. If insect control has been causing you to delay first cuttings until later in June, turn to spraying instead of wasting all of that protein and total digestible nutrients.

We know well the practical problems of early cutting, rainy weather, and the difficulties of getting the hay into the barn. It is all the more reason for putting up that first crop as silage, mow-dried hay, or with the hay crusher. There is too much money involved in lost feed to fiddle away any longer on this haymaking business.

$167 MORE PER COW

IS A cow any better simply because she has been tested for milk production? The answer must be, "No." The mere act of testing and weighing her milk does not make her produce more. She is, however, a more valuable cow when she is sold.

In the annual report of the American Guernsey Cattle Club an analysis is presented of all Guernseys sold at auction in 1954. Cows 2-years-old and over with official records sold for an average of $399. Those cows without records, and from untested dams, averaged only $232. In between, those with no records but from tested dams averaged $312.

In other words, there is a difference in sale value of $167 between cows with records as compared to those cows with no records and no records on their dams.

We do not argue that this increased value always exists. Naturally, the records must be good records and the animals of desirable type to command a premium over untested animals. The point remains, however, that it pays to test. This is but one more in a long list of arguments supporting that truth. Why is it that so few dairy farmers recognize that truth?

HOUSE SKIPS DAIRY

PERHAPS one good thing came out of the bitter House of Representatives debate on farm price supports. It was clearly demonstrated that neither political party had much to offer in the way of a peacetime dairy program.

There are a few individuals within each party who know the dairy industry and have made constructive suggestions. Unfortunately, the majority of congressmen have been unable to comprehend the complexities of the dairy industry and fail to recognize the essential ingredients of a sound dairy program.

During the most recent congressional election, northern Democrats, primarily from the big cities, promised great changes in dairy prices if their party was elected to control the Congress. From the South, however, Democratic congressional leaders cautioned that higher dairy price supports must carry with them effective production controls such as are applied to the so-called basic crops.

Most Republican candidates preferred to support the flexible price support program rather than go to production controls.

When the showdown came in the House of Representatives, both political parties backed away from production controls and higher price supports.

There are people, of course, who believe that we can have higher price supports without production controls. When this was proposed by Representative Laird (Wisconsin) southern Democrats turned him down because production controls were not provided.

In our opinion, the logic of the southern Democrats is sound. The government simply cannot continue to buy up the huge quantities of dairy products which are stimulated by higher prices on all milk and cream produced. From the dairy industry's point of view, it cannot have its cake and eat it, too.

What is often overlooked is that there are different types of production control methods, some of which are considerably more appealing than others. For example, we would strenuously object to a strict quota type of control. On the other hand, as indicated before in these columns, a two-price system is desirable, workable, and effective. There is no limitation on production but only the domestic market is supported at a given price level. The foreign, industrial, and relief markets are free-price markets and farmers receive whatever milk brings in these markets.

At one time we estimated that the application of the two-price dairy program to American dairying last year would have resulted in an increased income to dairy farmers of over $700 million. All this would have been at no cost to the federal government. Frankly, we regret that the Congress does not give the dairy industry a chance to handle its own stabilization program. We are convinced that it can do a far better job than the government has done to date.

DELEGATE vs. PROXY QUESTION

THIS is the season of the year when four of our five dairy breed organizations hold their annual meetings. Only the Brown Swiss Cattle Breeders' Association holds its annual meeting in the fall.

Down through the years, our editors have been present at almost all of these meetings and have participated in the programs of many of them. Usually these meetings are lively, interesting sessions.

It is true, of course, that most of the life and activity may be found removed from the meeting floor. In groups and subgroups will be found men forming alliances in support of one candidate or another, or some particular proposal having to do with breed affairs.

As year has succeeded year, we have heard those in the majority praise the method of governing a breed association, while oftentimes we have heard those in the minority want some type of change.

While we are inclined to favor the delegate system, as used by the Holstein-Friesian Association, we do not believe that the change in a system of government is, in itself, an answer to the problems of government. Under the proxy system a democratic and representative form of government is provided. The only shortcoming is that the members themselves often fail to exercise their membership rights.

Any failure of the proxy system reminds us of the election of an incompetent public official. This happens through citizenship neglect. It is the responsibility of citizenship first to select and nominate competent men for public office. Once nominated, the citizen has the further responsibility of working for his election. When an incompetent official is elected, therefore, it is a reflection not on the official but on the electorate.

By and large, we have had, and still have, a very high regard for the leadership of our breed associations. Most of these men serve with little or no compensation and at great personal sacrifice to their own finances. They have merited the team support of the membership of their respective associations or clubs.

Far more important to us in the future of breed affairs is not the petty differences which may occur from day to day, but the long-range problems which result from declining registrations and transfer fees, high dairy farming overhead, high labor costs in breed offices, and overlapping herd improvement services existing in the dairy industry.

It is our hope that the Purebred Dairy Cattle Association, acting as a clearing-house for the exchange of information may explore some of the possibilities of cooperative effort in the fields of production testing and other breed services in the years ahead.

In 1909, W. D. Hoard said:

No other animal on the farm is drawn upon so greatly and gets so little for what she has to do as the cow. We demand of her that she give milk enough to make a profit; that she produce a healthy, vigorous calf and that she support herself in good health.

No wonder the Hindoos considered her as one of Heaven's most precious gifts to men.

We can build . . . better markets with new products

. . . and we can make better use of our present products. Here is what research is doing to move our milk to the consumer with less handling costs.

THE cost-price squeeze on farmers emphasizes the need for new or better ways of producing, marketing, and using dairy products without depriving producers of just rewards.

Dairy products have been used primarily in three different ways: (1) as fresh milk and cream, (2) in various processed forms, and (3) as a feed for livestock. In addition to these three main uses, some by-products of the dairy industry are used for industrial purposes.

The percentage of total milk solids sold as fluid milk is about 38; in various processed forms, about 32, and for non-food purposes, about 30. Of significance is the fact that only 70 per cent of the total milk solids is consumed as food, and only about 8 per cent as butter. Yet butter is the phase of the dairy surplus problem which has received most publicity.

Perhaps the most important factors affecting the health of the dairy industry are the declining consumption of butter (except for this past year) and the larger proportion of total milk solids used for non-food purposes — a very low-priced market.

In the large Midwest milk-producing areas it has been the custom, because of the distance from large fresh milk markets, to process milk to butter, and to feed a large proportion of the skim milk and buttermilk to livestock. For a farmer to dispose of the skim milk at feed prices the difference in value of this product for food and for feed purposes must be offset by placing a higher price on butter. Butter, therefore, has carried this extra load. This has tended to widen the spread between its price and that of margarine. It has hurt the sale of butter in the market place.

But there is one other facet to the dairy surplus problem. Even if the shift of skim milk from the feed to the food field were made, it alone would not solve the butter surplus problem. Higher-priced outlets for skim milk solids in the food field would aid in lessening the price load which butter is now carrying.

But it would seem to be indicated that a change in our practice of processing such a large proportion of milk to butter and skim milk must also be effected. This could be done only by finding expanded outlets for whole milk or processed whole milk products.

Huge market in bread . . .

Six per cent of non-fat milk solids in bread seems to give the best results. If the percentage of non-fat milk solids in all bread was raised to 6 per cent, it would provide a market for an additional 300,000,000 pounds annually. Owing to its cost, the baking industry has been reluctant to increase the quantity of non-fat milk solids in baked goods. The advantages of using greater quantities of non-fat milk solids in bread together with its increase in nutritional value are powerful arguments which the dairy industry can use in expanding the sale of non-fat milk solids for this end use.

Low heat non-fat dry milk powder, which is reconstituted for beverage purposes and has other food uses, is another important product of the dairy industry. It has become increasingly popular as its quality has improved and its merits from the nutritional standpoint have been recognized by the housewife.

Most undersold item . . .

One of the most important products produced from skim milk is cottage cheese. Its consumption in this country has more than doubled in the past 10 years. Even so, it is still spoken of as "one of the most undersold items in the dairy products line". Except for non-fat dry milk, it is the cheapest source of animal protein available.

In considering the foundations for the future of the dairy industry, we would be remiss to overlook the neglected by-product, whey. In heavy producing regions it is economical to dry whey for sale to commercial feed mixers.

In addition to outlets in the feed industry, some whey is of the edible grade and offers interesting possibilities for use in the food field and increased returns to the dairy industry. Cheese whey contains among many other constituents about .5 per cent of a protein, high in nutritive value and readily recoverable but granular in texture and hence not very attractive as food. It has thus far found little use except in animal feed.

In recent work, however, we have developed a method for converting the granular protein to a soft, smooth paste suitable for use as a base for spreads.

The most convenient forms in which to preserve and ship whey destined for food use are as dried whey or sweetened condensed whey. We have found both of these forms suitable for use in cakes, cookies, and sweet goods.

Whey for candy . . .

The fineness of the crystalline lactose in sweetened condensed whey allows this product to be used as a fondant in certain types of fudge and its whipping properties give it the characteristics of a frappe. We have made from sweetened whey caramels, fudge, and taffies. Whey increases the nutritive value of candy, decreases its sweetness, and adds a pleasing milk flavor.

One of the best opportunities for increasing the consumption of milk would be the availability of a concentrate which could be easily reconstituted to a highly-palatable beverage.

There are sections of the United States where it is difficult, if not impossible, to obtain fresh fluid milk of good quality. There are many small households in this country which feel they do not consume enough milk every day to warrant delivery of the fresh product at their doorstep, and have lost the habit of purchasing fresh milk at the grocery store when shopping. Many families, because of the perishability of fresh milk, buy only the minimum daily requirements rather than the maximum which is frequently needed.

Furthermore, there is a tremendous potential market for beverage milk in many foreign countries where fresh milk is not generally available. In many of these countries, the nutritional level of the average diet is low and needs to be supplemented by animal protein and accessory nutrients of the type that are present in milk.

Our dairy products laboratories in the Department, some of those in our state colleges of agriculture, and the laboratories of the large dairy companies, are endeavoring to devise one or more products that will satisfy this need. We are working, therefore, to improve evaporated milk, frozen concentrated milk, and "instant" whole fat milk powder.

Flavor-concentrate problem . . .

It has been said that "flavor is the primary index of food acceptance and food product improvement." This is certainly true for milk, particularly in this country where most of us have been raised on fresh milk and have developed a marked taste habit for it.

The spectacular history of frozen orange concentrate illustrates the regard consumers have for a product of excellent quality reduced in weight and bulk and available at prices they deem reasonable. In view of the success of frozen orange concentrate, it is only natural that we would devote attention to exploring the feasibility of producing a similar product from milk.

Evaporated milk is another concentrate on which we are placing heavy emphasis from a research standpoint. The production of evaporated milk is an important phase of the dairy industry, having increased 90 per cent during the past 25 years. Owing in part at least to its cooked flavor, it has not gained wide acceptance as a beverage. It is known how to make evaporated milk that has a flavor quite similar to that of fresh milk, but at least until recently experience has been that the product tends to gel after storage for a few months. To avoid gelation, it has been necessary to heat the milk under conditions such that some cooked flavor develops.

Fundamental studies are underway to find the cause of this gelation phenomenon in order to develop a logical means for avoiding it. As improvements are made in evaporated milk, we can expect increased acceptability by the public.

Optimistic about drying . . .

The principles of the process for producing fruit and vegetable powders are now being applied to whole milk and skim milk. We are optimistic on the success of this work, particularly since we can foresee no reason why the method used for producing orange and tomato juice powder should not be applicable to milk. An "instant" whole milk powder, because of reduced bulk and weight, decreases storage and transportation costs. The saving that can be made is very large.

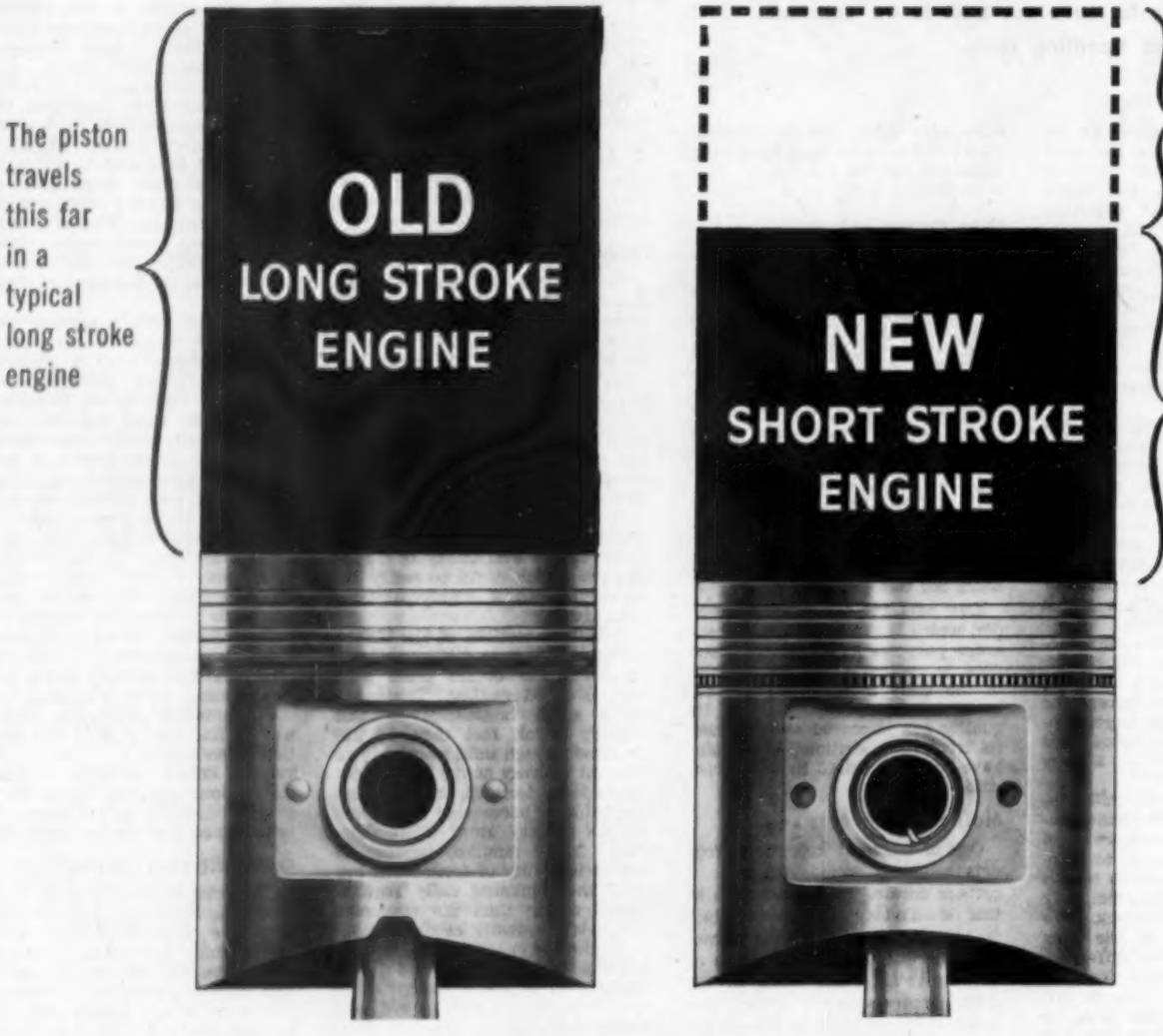
Whole milk powders and concentrates also offer a means of reducing our high distribution costs. What this could mean in savings is apparent when we reflect that 33 per cent of the milk bill goes for delivery. For example, the delivery of a quart of milk to the Greater Cleveland consumer's doorstep costs the dairy about one-third of the current retail price of 21 cents. Because of these advantages, we believe whole fat milk concentrates could revolutionize the daify industry and do for it what frozen orange concentrate has done for the orange industry.

ED . . . *and EMMA*

"Cow kicks!"

This article is an abstract of an address by Dr. G. E. Hilbert, Director of Utilization Research, United States Department of Agriculture, before the annual meeting of the National Dairy Council.

Look under the hood!


The piston travels this far in a typical long stroke engine
OLD
LONG STROKE
ENGINE
This much piston travel is saved
...when the piston travels only this far ...as in a modern Ford Short Stroke engine
NEW
SHORT STROKE
ENGINE

Something NEW is happening to truck engines! It's called modern Short Stroke design! It increases piston ring life up to 53%! It cuts engine friction as much as 33%! It saves up to 1 gallon of gas in 7. And Ford's got it in *every* truck!

When you shorten the "stroke" of an engine you automatically cut down the distance a piston has to travel.

The result is LESS FRICTION! And that means longer engine life, greater gas savings, more usable power for the rear wheels.

Differences between outdated long stroke engines and Ford's modern Short Stroke design seem small, but they're not. In one case for instance, Ford's stroke is shorter by 1-2/3 inches. But when you consider two strokes per engine revolution, and 1,500 revolutions *per minute*, this adds up to 5,121 miles less piston travel per Short Stroke piston during an average year's driving of 26,000 miles.

With modern Short Stroke engines in every truck model, is it any wonder that Ford was the only leading truck manufacturer to show sales increases during the year 1954.

To *be sure* you're getting a Short Stroke engine *make sure* the "stroke" is shorter than the "bore."

Only Ford Trucks give you money-saving Short Stroke power in every engine V-8 or Six!

You get a special extra bonus as well as regular savings in modern Short Stroke design.

Reduced friction, longer engine life, and gas savings offer such wonderful regular dividends that the whole truck industry is beginning a major switch to Short Stroke engines.

Once this changeover is completed, can't you see what will happen to the trade-in value of a truck with an old long-stroke engine? That's where your *extra bonus* comes in. Short Stroke design protects trade-in value. So, look under the hood! Better yet, go Ford! *Every* Ford Truck, big or small, *every* engine, V-8 or Six, offers Short Stroke design.

New Money Maker Ford Trucks for '55 save three ways:
(1) Modern Short Stroke power in every model saves gas.
(2) Modern DRIVERIZED CAB convenience saves work.
(3) Modern high-payload construction saves trips.

Ford Triple Economy Trucks

The MONEY MAKERS for '55

Going bulk? Go Wilson!

Experience counts, and Wilson has farm refrigeration experience . . . 25 years of it! Remember:

OVER 20,000 FARM MILK COOLER* INSTALLATIONS—*BASED ON SAME ICE-WATER-SPRAY PRINCIPLE!*

*Top unretouched photo shows seven-year-old Wilson front-opening CAN Milk Cooler—second, a relatively new Wilson BULK Milk Cooler.

Both employ Wilson *ice-water-spray cooling*—with efficient Wilson *Drop-In Unit* and its *ice-bank in separate compartment*—farm-proved over a 10-year period in 20,000 installations!

Wilson Bulk Milk Coolers also benefit from Wilson's 25-year experience with immersion-type can coolers . . . and by use of amazing new "lifetime" galvanized steels, plastic-type finishes and stainless steel alloys.

Going bulk? Go Wilson! Get extra value, features and guarantees!

WILSON DROP-IN UNIT—easily removed for emergency use of block ice in case of power failure . . . for ice or substitution of another Unit in case of mechanical failure. You're always SAFE—with Wilson!

America's leading manufacturer of farm milk coolers (bulk and can) for 25 years!

WILSON REFRIGERATION, Inc., SMYRNA, DELAWARE

Division, Tyler Refrigeration Corporation

WILSON

BULK MILK COOLERS

Complete range of sizes—from 80 to 700 gallons

New Wilson Upright (25 cu. ft. model)

New Wilson Chest (15 cu. ft. model)

The BIG, best-on-the-farm FREEZERS are also WILSON!

The new Wilson Home Freezer line includes all popular farm sizes and types—outstanding features and value! Combines best convenience features it took former Wilson and Harder-Freez organizations years to develop! Exclusive Center Plate Coil, Juice Racks, Hidden Locks, In-Door Storage, many others. See new Wilson—*double the heritage* of any other freezer!

Wilson Refrigeration, Inc., Dept. H-6, Smyrna, Delaware.
Rush information on advantages of Wilson ☐ Bulk Milk Coolers ☐ Can Milk Coolers ☐ Home Freezers.

NAME_____

ADDRESS_____

How to control legume insects

(Continued from page 553)

hexachloride, 1½ pounds of toxaphene, or 1½ pounds of methoxychlor will also give good control. Spring treatments should be applied as soon as the nymphs are found in the field. The plants must be examined very closely in order to find the young nymphs.

Spray when 8 inches . . .

The spray should be applied before the crop reaches a height of 8 inches. It should be emphasized again that fall treatments present no residue hazard in spring-pastured fields. The field must not be pastured in the fall, however, until five or six weeks after spraying. A spring-treated field should not be pastured for one week after methoxychlor has been applied, for three weeks after Lindane or benzenehexachloride, or five weeks after toxaphene has been applied.

The pea aphid is another insect that sucks sap from the plants but it does not cover its body with spittle. This aphid is a small, green, soft-bodied, long-legged insect measuring from 1/16 to 3/16 of an inch or more in length. It may or may not have wings.

When numerous, pea aphids can cause the plants to wilt, turn brown, and die. When less numerous, they can severely stunt the plants. Cool, dry weather is favorable to an extremely rapid increase in the population of aphids. With the advent of hot, humid weather, natural factors usually keep the aphid population fairly low.

Pea aphids can be controlled by spraying with 0.3 of a pound per acre of benzene-hexachloride or ¼ of a pound of parathion. Parathion is extremely toxic to humans and should be applied only by an experienced person wearing the proper safety equipment. The spray should be applied at any time aphids are noticeably abundant in the field. The crop should not be pastured or harvested for hay until three weeks after treatment.

The tarnished plant bug, alfalfa plant bug, and rapid plant bug are three more sap suckers that damage legume fields. They are probably more destructive to seed crops than to hay crops. These three insects have wings which are thick and leatherlike on the front with thin, membranous tips.

The tarnished plant bug is somewhat oval in outline and approximately ¼ of an inch long. It may be light to dark brown in color. The alfalfa and rapid plant bugs are elongated oval and about ⅛ of an inch in length. The alfalfa plant bug is light tan, with possibly a green tinge, while the rapid plant bug is dark brown, with a light stripe along the outside edge of the wings.

One of the favorite feeding habits of the tarnished plant bug, once clover blossoms begin to develop, is to puncture the ovule in the base of the flower and suck out the sap. The ovules normally develop into seeds, but every one that is punctured by a plant bug is one less good seed to be harvested.

The alfalfa plant bug is more numerous on alfalfa than on clover, while the tarnished and rapid plant bugs are common on both clover and alfalfa. One to 1½ pounds of DDT per acre applied when the plants are in the bud stage will control these pests.

One and one-half pounds of toxaphene or 1 pound of chlordane will also give good control. The plants should not be sprayed when they are in full bloom, as to do so may kill many of the valuable pollinating insects which are essential to a good seed crop.

The potato leafhopper is still another sap-sucking insect. Most of the damage it does to legumes is done to alfalfa. This insect is an elongated, slender, somewhat wedge-shaped, green, jumping insect about ¼ of an inch in length when full grown.

Leafhoppers cause yellowing . . .

The population of potato leafhoppers in the Midwest apparently depends to a large extent on the number of adults that migrate in from the Gulf States each spring. They usually do not appear in time to do serious damage to the first cutting of hay. However, they lay eggs in the stems of the first cutting and build up their numbers enough to cause severe yellowing and stunting of the second and third cuttings. Several generations may occur in an alfalfa field during a single summer.

If the alfalfa is to be left for a seed crop, the potato leafhopper can be controlled with 1 pound of DDT per acre. If it is to be used as a hay crop, 1 pound of methoxychlor per acre should give good results. DDT should not be used on the hay crop. The hay should not be harvested for at least a week after methoxychlor is applied.

Grasshoppers are recognized by everyone who sees them. They usually do not do much damage to the first cutting of legume hay. They sometimes retard the growth of the second or third cutting, and if the crop is to be left for seed, they can greatly reduce seed yield by cutting off the clover heads or the alfalfa seed pods.

Young nymphs can be controlled by spraying with 1 to 1½ pounds of toxaphene, ½ to 1 pound of chlordane, or 2 ounces of dieldrin per acre. For large nymphs or adults, the dosage should be increased to 1½ to 2 pounds of toxaphene, 1 pound of chlordane, or 3 ounces of aldrin or dieldrin per acre.

THE END

Check corn for nitrogen starvation

A quick test is available to measure the nitrogen needed as side-dressing in growing corn. It has been developed by Kermit Berger of the University of Wisconsin. The test is based on an inexpensive color chart, and can be used by any farmer, county agent, or fertilizer dealer.

To make the test, the colors of the lower leaves on knee- to hip-high corn are compared with those on the test card. The corn leaf is matched to the nearest color on the chart. A key on the back of the chart tells the exact amount of any of the common nitrogen fertilizers which should be used on the field as side-dressing.

The price of the test card is $1 with reduced rates on quantity orders. Address orders to Kermit Berger, P. O. Box 254, Madison, Wisconsin.

National Farm Safety Week

President Eisenhower has proclaimed the week beginning July 24, 1955, as National Farm Safety Week.

He has done this because 14,000 to 15,000 farm residents are killed and 1,200,000 or more are injured in accidents each year. The economic loss to the country is about a billion dollars.

Mining and construction industries have a higher rate of work deaths per 100,000 workers, but agriculture, due, in part, to the larger number of people employed, has the highest number of accidental work deaths. Farming is the country's third most hazardous industry.

Regardless of nation and group safety activities, the ultimate responsibility for each farm resident's safety is — himself. This individual responsibility is summed up in the "Life-Line of the Week" —YOUR SAFETY IS IN YOUR HANDS.

The purpose of this week is to focus nation-wide attention on the seriousness of farm accidents . . . to inspire greater year 'round safety activity for farm safety by each farm resident. It is also to make the individual's farm life a safer, happier, and more prosperous life.

Plan dairy exhibit in Disneyland Park

"Today's Food Builds Tomorrow's Man" will be the theme of the American Dairy Association exhibit in Disneyland Park. Scheduled for opening around the middle of July, the 160-acre park is located at Anaheim, California. It is expected that about five million people will visit the exhibit each year.

The exhibit featuring dairy foods will be located in the Tomorrowland section of the park. The role of milk and milk products in building healthier and happier people will be vividly portrayed through the use of a display which will blend with the Tomorrowland atmosphere of the area.

The American Dairy Association's participation in the Disneyland Park project is a part of the organization's growing ties with the Disney organization. The sponsorship of the Disneyland television show which rates as one of the nation's top ten TV shows, and a part of the Mickey Mouse Club TV show, scheduled to begin in October, are other phases of the association's use of Disney fame to expand sales of dairy foods.

Recent meetings have been held with Walt Disney Productions to expand further the merchandising value of the association's relationship with the several Disney enterprises.

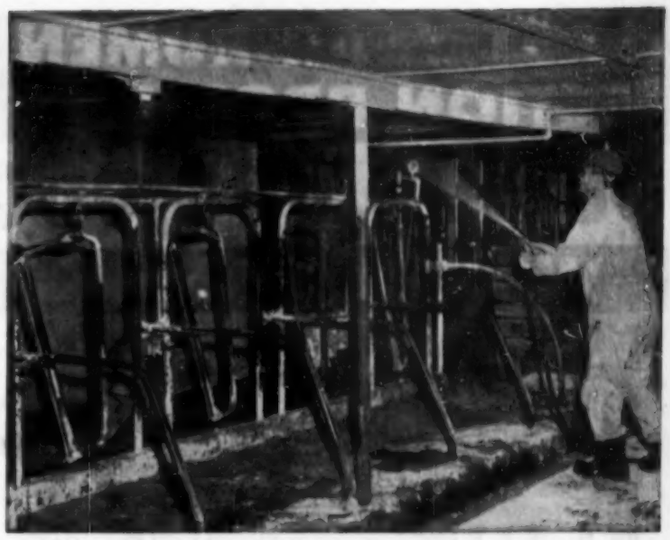
Correction

In the May 10, 1955 issue of Hoard's Dairyman, on page 456, the following correction should be made in the article "Run Tractor Engine at Correct Temperature" by O. I. Berge.

Column two, paragraph four, the second sentence, should read, "Ordinary household borax at the rate of 1 ounce per 6 quarts of water is also a rust and corrosion inhibitor. . ."

Quads born in Washington

QUADRUPLET HOLSTEIN CALVES, which occur once in every 20,000 births and have one chance in 10,000 of all surviving, were born on the farm of Harry Soames, Washington. Not only have these calves survived, but they show every indication of health. Bobby and Janette Pfeiffer, whose father, Russ Pfeiffer, is manager of Carnation Milk Farms, help these quadruplets feel at home during the first week away from their mother, Inka Carnation Sadie Madcap. The milk bottles, equipped with nipples, make an excellent substitute for the cow's udder.



Control flies in dairy barns by spraying thoroughly with malathion.

MALATHION IS THE PREFERRED INSECTICIDE FOR FLY CONTROL

Malathion's amazing effectiveness, long residual kill and low cost are a few of the reasons. And here are *more* reasons why malathion is attracting so many new users:

- It is recommended for fly control by USDA.
- It can be applied in and around dairy barns, on manure piles and garbage heaps, along fence rows, on the ground around water troughs—and on similar places where flies gather or breed.
- Easy to use as a knockdown and residual spray made from wettable powder or emulsifiable liquid. Also available as a dry bait.
- Residual kill lasts up to 21 days, depending on local conditions.
- Kills DDT-resistant flies and fly maggots, too.
- Quickly effective.
- Economical.

Don't spend another dollar on fly control until you get all the facts about malathion!

Consult your local agricultural authority. Write for free leaflet.

Malathion insecticides are available from well-known manufacturers. See your regular supplier. Look for MALATHION on the label.

American Cyanamid Company
AGRICULTURAL CHEMICALS DIVISION
30 Rockefeller Plaza, New York 20, N. Y.
DEVELOPERS AND PRODUCERS OF MALATHION AND PARATHION TECHNICAL

MR. DAIRY FARMER, DAIRY QUEEN SALUTES YOU!

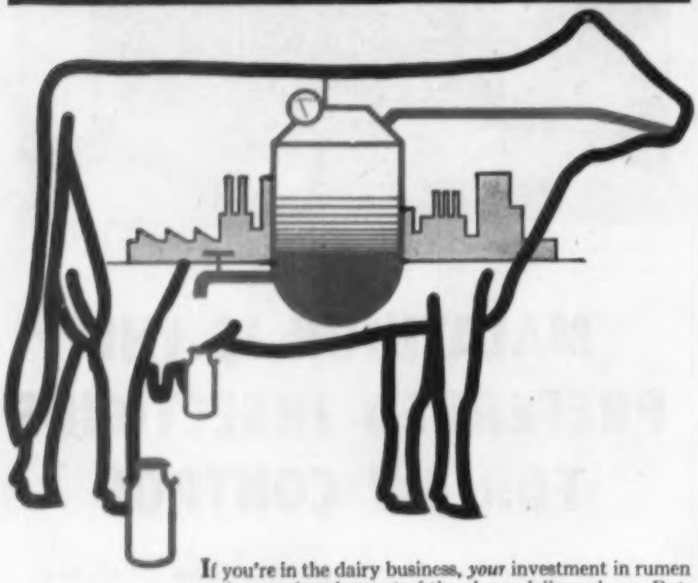
In 1954 you produced 3½ million pounds of whole milk for our DAIRY QUEEN ice milk mix used in Wisconsin alone. Current trends point towards more than 4 million pounds in 1955! DAIRY QUEEN, using both solids and butterfat as found in whole milk, contains *no dairy substitute*. Over 80 Wisconsin DAIRY QUEEN stores (and more are being built regularly) pledge to you every co-operation toward the future marketing of your whole milk. Why not stop in and say "hello" to your local DAIRY QUEEN owner . . . he is one of your best customers!

Sincerely,

DAIRY QUEEN of WISCONSIN
H. S. Dale, R. J. Rydeen, M. E. Montgomery

NEENAH MILK PRODUCTS
Neenah, Wisconsin
John, Hed, Dick Galloway

LAST YEAR RUMEN ACTION PRODUCED $8,400,000,000 WORTH OF MILK



If you're in the dairy business, *your* investment in rumen action produced a part of the above dollar volume. But, were the returns on your investment satisfactory?

Suppose for a moment that Rumen Action was a large corporation. You're a stockholder and you'd like to increase the returns on your investment. What should you do?

The first step taken by most major corporations to increase returns is to go through the whole corporation and get rid of the "boarders."

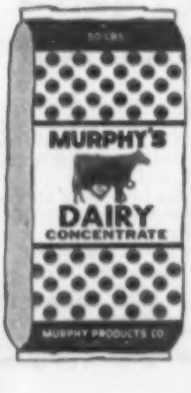
Step two toward increasing returns from your Rumen Action investment is to improve conditions in each plant (rumen) in order to attract more friendly workers (bacteria). Friendly workers make better use of raw materials (pasture and grain)—this results in lowering production costs. Unfriendly workers hinder management and raise the cost of producing the product (milk).

Step three is the big key to greater profits from your Rumen Action investment. Closely check your purchasing department. It is the job of purchasing to make sure that the workers in each plant are getting the raw materials they need to efficiently and economically produce the end product (milk). Low cost production can only result when the purchasing department supplies *all* of the raw materials needed. When purchasing slips up and certain raw materials are missing, production is slowed down, waste goes up.

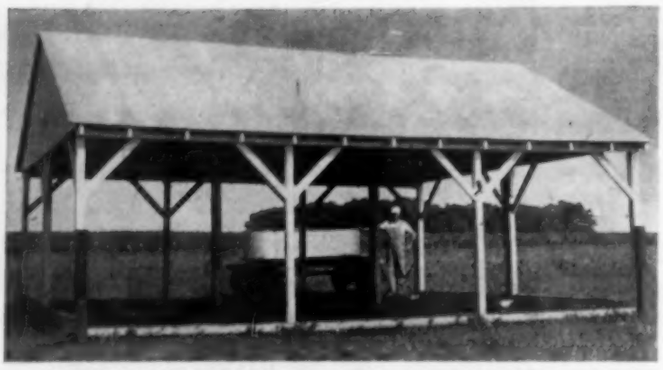
Therefore, to economically supply these workers with the raw materials they need, we recommend that your purchasing department buy enough MURPHY'S CUT-COST DAIRY CONCENTRATE so as to start 16 to 20 ounces of the concentrate into each Rumen Action plant every day.

MURPHY'S DAIRY CONCENTRATE supplies the friendly workers with the proteins, minerals and vitamins (the tools) they need to work efficiently. This means the Rumen Action plants where MURPHY'S is used can produce more milk with less grass and less grain. The cost of MURPHY'S is more than paid for by the increased production, the saving in grass, the saving in grain, the reduction in waste, and the healthier attitude of the workers.

So, for more efficient production and lower cost per unit, always put MURPHY'S CUT-COST DAIRY CONCENTRATE into the production schedule. With no elements missing, production flows steadily, more efficiently and profits are better. Buy MURPHY'S and increase your returns on your investment in Rumen Action.



MURPHY
PRODUCTS CO.
BURLINGTON, WIS.



TEMPORARY SHADE such as this makes good substitute for trees.

Don't neglect pasture, shade, and water

(Continued from page 547)

pasture at all times, rain or shine. They should never be turned out to eat when they are very hungry. Even with these precautions, it is well to watch the herd for signs of bloat.

Many good dairymen feed hay to cows even on good pasture, in addition to feeding them a balanced grain ration at milking time. It is well to keep a fresh supply of salt and mineral within range of the cows at all times. This should be covered from the rain.

Irrigation good insurance . . .

Sprinkler irrigation is a form of insurance against dry weather. Experiments have shown that twice as many animals can be carried on an irrigated pasture. Irrigation, however, must be done before pastures have suffered.

Before deciding to irrigate on your particular farm, thoroughly investigate the matter before installing a system. Then engage a competent engineer to recommend a plan for your individual setup. A limiting factor will be an abundant supply of water nearby. The possibility of securing wells strong enough for this purpose is limited. Streams are the most common source of water supply, but here you will need to check to prevent damage to landowners downstream. There may be legal restrictions, too. Pasture land to be irrigated should have reasonably good internal drainage, but it must not be excessive.

Fresh water a must . . .

Sometimes dairymen are most particular about their management of pastures, but fail to provide a constant supply of fresh water. A stream of running water in the pasture itself is nice if you have it. Sometimes it is necessary to pasture land a little distance from the general water supply. The answer to this one is the water tank on wheels like the one shown in the picture on an Iowa farm owned by Everett Renfrow.

This particular one had but one water cup attached to the rear of the tank. A better one will have two water cups on each side. Note that the tank is placed on the east side of the portable shade shed where it will be protected during the hottest part of the day. Fresh water is hauled daily.

Plans on the Renfrow farm call for piping water from a strong artesian well, about 20 rods away, direct to a tank in the pasture, thus eliminating the need for hauling water.

Cows need shade . . .

Shade is the third factor in good summer management of dairy cows. Pastures with trees and underbrush are ideal for dairy cattle, the trees furnishing the cool shade for the animals, while the underbrush will allow the cows escape from the molesting flies. Not all pastures have these fine gifts from nature, and man must provide other means of shade while making plantings of trees for later use. Small, newly-planted trees should be fenced for protection against injury from the cattle until they are large enough to "take it".

The 20 by 24 foot portable shade shown in the picture is a good substitute for trees.

Two things should be remembered in building this type of shade: (1) use aluminum roofing for reflecting the rays of the sun, and (2) bolt the building to sunken posts to withstand heavy wind damage.

Nothing is more important than COW COMFORT in making big milk checks. Therefore, no effort should be too great for achieving it.

THE END

New Zealand raises dairy prices

New Zealand has raised its guaranteed price for butter and cheese, the International Federation of Agricultural Producers reports.

The increase resulted after New Zealand farm workers were given a minimum pay raise of about 70 cents a week. They now earn the equivalent of $26.17 a week. The increase in guaranteed price for butter and cheese will be about ¾ of a cent per pound.

Last September New Zealand cut its guaranteed prices as a step toward being able to offer lower export prices. The new increase, however, more than wipes out the reduction in butter prices, but it restores only about 42 per cent of the reduction in cheese prices.

In terms of United States currency, New Zealand butter now has a guaranteed price of 39.5 cents per pound, while cheese has 21.8 cents per pound.

New Zealand's export price for butter on an f.o.b. basis is 40.8 cents and for cheese it is 18.6 cents a pound.

1955 custom rates for machinery

(Continued from page 552)

PLANTING AND DRILLING

JOB	BASIS OF CHARGE	NORTH CENTRAL	NORTH EAST	SOUTH	MOUNTAIN	PACIFIC
Corn planting						
Without fertilizer	Acre	$ 1.25- 1.50	$ 2.00	$ 1.50	All row crops $ 1.00- 1.75 $ 2.25- 2.75	
With fertilizer	Acre	2.00	3.00	2.00		
Check row, without fertilizer	Acre	1.75	-	-		
Check row, with fertilizer	Acre	2.25	-	-		
Drilling small grain						
Without fertilizer	Acre	1.25- 1.50	1.25- 1.75	1.00- 1.50	All drilling 1.25- 1.75	2.00
Without fertilizer, with clover seed	Acre	1.50	1.50- 2.00	-		
With fertilizer	Acre	1.50- 2.00	1.50- 2.00	1.50- 2.00		
With fertilizer and clover seed	Acre	2.00- 2.50	2.50	-		
Drilling soybeans	Acre	1.25- 1.50	1.75	1.25- 1.50	-	-
Other beans	Acre	1.25- 1.50	-	-	1.25	1.50- 2.00
Planting potatoes	Acre	4.00- 5.00	4.50	4.00- 5.00	5.00	5.00
Cotton	Acre	-	-	2.00- 2.50	1.50	2.25- 2.75
Sugar beets	Acre	-	-	-	2.00	2.00
Seeding alfalfa, clover, etc.	Acre	1.00- 1.25	1.00- 1.25	1.00- 1.25	-	-
Broadcast seeding	Acre	.75	.75	.75	.75- 1.00	.75

SPRAYING AND DUSTING

Spraying, all (average)	Acre	1.50	1.50	1.50	1.25- 1.50	1.50- 2.00
Spraying weeds with 2, 4-D (material included)	Acre	2.00- 3.00	2.00- 3.00	2.00- 3.00	1.25- 1.50	.10- .12 (Gal.)
Spraying for corn borer						
Tractor outfit, including material	Acre	2.50	-	-	-	-
Tractor outfit, no material	Acre	1.00	-	-	-	-
Aerial (no material)	Acre	1.50- 2.00	-	-	-	-
Spraying for spittle bug or alfalfa weevil	Acre	2.00- 2.50	2.00- 3.00	-	2.50- 3.00	-
Spraying potatoes	Acre	4.00- 6.00	4.00- 6.00	-	4.00- 6.00	4.00- 6.00
Vegetables	Acre	4.25	4.25	-	2.00- 3.00	-
Tree fruit	Hour	-	5.00- 6.00	-	-	-
	Gal.	.02	.02	-	.02	.02
Citrus	Gal.	-	-	.015	.015	.015
Cotton	Acre	-	-	1.00- 3.00	1.00- 3.00	1.00- 3.00
Spraying fence rows	Hour	2.50- 3.00	3.00	3.00	3.00	3.00
Spraying buildings with DDT	Hour	3.25	3.25	3.25	3.25	3.25
With paint	100 sq. ft.	1.50- 2.50	1.50- 3.00	3.00	1.50- 3.00	1.50- 3.00
Spraying cattle	Head	.25- .50	.25- .50	.20- .35	.25- .30	.25- .35
Dusting, all (average)	Acre	$ .75- 1.00	$ .75- 1.00	$ .75- 1.00	$ .75- 1.00	$ 1.00
Cotton	Acre	-	-	.75- 1.00	1.00	1.00
Potatoes	Acre	1.50	1.50	-	-	-
Vegetables	Acre	1.00	1.00	1.00	1.00	1.00

MISCELLANEOUS

JOB	BASIS OF CHARGE	NORTH CENTRAL	NORTH EAST	SOUTH	MOUNTAIN	PACIFIC
Boring post holes	Hole	.10- .35	.20- .30	.10- .20	-	-
Manure loader	Hour	2.75-3.25	3.00- 3.25	3.00- 3.25	3.00- 3.25	3.00- 3.25
Spreading fertilizer	Ton	3.00- 5.50	-	3.00- 5.00	-	-
Bulk	Acre	.50- 1.00	.50- 1.50	1.00- 1.50	.50- 1.50	.50- 1.50
Side dressing	Acre	1.00- 1.50	-	1.00- 1.50	-	1.50- 2.00
Airplane	100 lb.	-	-	-	1.25- 2.00	1.25- 2.00
Fertilizer spreader rental	Acre	.20- .30	-	.25- .35	-	-
Applying anhydrous ammonia (not including material)	Acre	2.00- 2.50	2.50- 3.25	2.00- 3.00	1.50- 2.00	1.50
Fertilizing cotton	Acre	-	-	-	1.25- 1.50	1.25- 1.50
Shelling, storing, treating corn	Bushel	.06- .10	-	.20- .25	-	-
Corn drying	Bushel	.05 plus ½c for each 1% of moisture reduced	.08- .11	.25	-	3.50 Ton
Shoveling corn	Hour	1.00- 1.50	-	-	-	-
Bulldozing (depends on size)	Hour	8.00-15.00	8.00-15.00	8.00-18.00	8.00-20.00	8.00-20.00
Grinding feed						
Corn (medium)	Cwt.	.05- .08	.10	.08	.08	.08
Corn and cobs	Cwt.	.06- .08	.10	.08	.08	.08
Cobs	Cwt.	.20- .30	.20- .30	.20- .30	.20- .30	.20- .30
Oats	Cwt.	.10- .20	.10- .20	.10- .20	.10- .20	.10- .20
Building fence, woven wire, 1 barb (no material)	Rod	1.00- 1.25	-	(Mile) 225.00	-	-
Machine tiling (not including tile)	Foot	.11- .15	-	.10- .16	-	- .40
Land clearing	Acre	50.00-100.00	-	40.00	15.00-30.00	-
Truck (without operator)						
1 ton or smaller	Mile	.15	.15	.15	.15	.15
1½ ton	Mile	.20- .25	.20- .25	.20- .25	.20- .25	.20- .25
Tractors, wheel-type (without man)						
Large	Hour	1.50- 1.75	1.75- 2.50	-	-	12.00 Day
Medium	Hour	1.25- 1.50	1.50- 1.75	-	-	10.00 Day
Small	Hour	1.00- 1.25	1.25- 1.50	-	-	8.00 Day
Cleaning septic tanks	Job	15.00-20.00	-	15.00-30.00	-	-
Hauling water	1000 gal.	6.00+5c MI. OVER 5 MILES	-	-	-	-
Sawing wood, chain saw	Hour	4.00- 5.00	4.00- 6.00	3.00- 5.00	4.00- 6.00	4.00- 6.00

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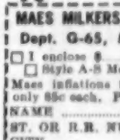

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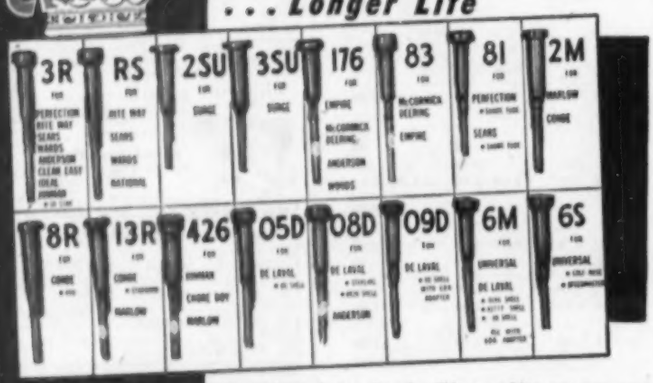

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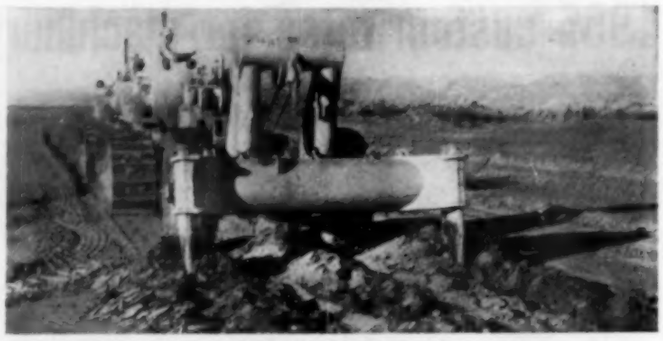

CHISELING 4 feet deep to break up an alkali hard pan. These conditions exist in South and Southwestern part of United States.

How to loosen compact soil

(Continued from page 549)

better than did the roots of alfalfa.

Most tillage pans can be prevented by following these three rules:

1. Simplify tillage operations by making fewer trips over the field, especially when the soil is wet.

2. Follow a good rotation system, including a sod crop for as long as possible.

For example, in Pennsylvania, density of the surface soil under a bluegrass sod for many years was 67 pounds per cubic foot. Under a good farm rotation, the soil weighed 78 pounds or 15 per cent heavier.

3. Increase the organic content of the soil by applying liberal amounts of barnyard manure, turning under or chopping in crop residues, and using large quantities of lime and commercial fertilizers. Proper liming and fertilizing increases root and top growth, thus making more organic matter available to cushion the soil against soil compaction caused by heavy farm implements.

Control pasture pans . . .

1. Plant emergency warm-season pasture crops such as sudan grass or Japanese millet so as to take some of the grazing pressure off the regular pasture.

2. Plant rye, barley, wheat, oats, or some other cool-season pasture crop to supply late fall and early spring grazing during periods when the regular pasture is usually too wet to graze without puncturing. This is probably the best practice used to reduce the formation of pasture pans.

3. Fertilize; lime the land; and seed the best pasture mixture so that the pasture is something besides an exercise lot. The more forage available for the cows, the less they will need to walk to get enough forage and consequently the less tramping action will take place.

4. Practice some form of rotation grazing, especially with an electric fence to limit the cows to one day's grazing at a time. In this way, less tramping action will occur.

If you practice zero grazing, that is, chop and haul all pasturage into the cows and permit no grazing, then this will eliminate pasture pans but will make the plow pan or tillage pan worse.

6. Chisel the pasture with some form of field cultivator or other tillage implements. Pasture pans extend to perhaps a depth of 4 inches, so it is necessary to stir the soil to this depth without killing the stand.

7. At time of reseeding the pasture, a plow and disk or field cultivator will destroy pasture pans. Firming the soil into a good seed bed by some type of cultipacker is even more essential after pasture pans are broken up, since the platy structure of the pasture pan does not readily make a firm seed bed.

Take a close look . . .

Natural or man-made compacted layers appear to be limiting field crop and pasture production all over the nation. Whether you have a compacted layer in your pasture, only you can tell.

Dig into your soil in every pasture during wet periods and also when the soil is dry. When water stands on or near the surface, dig into the soil to a depth of at least 3 feet and observe if you strike a layer which is quite dry and hard. Continue digging to see if the soil layers beneath are not easier to dig. If so, then you have a compacted layer. If you strike this same compacted layer at about the same depth over the pasture, then perhaps deep tillage would pay.

Let's suppose you have a compacted layer. Even before you go to the expense of chiseling, send a sample of this hard layer to your state soil testing laboratory for chemical analysis. It is likely that you also need lime and commercial fertilizers at this depth. If so, they can be applied by suitable hoppers mounted on the chisel at the time of chiseling.

Pasture pans can be recognized also by digging. Take a spadeful of soil to a depth of 6 inches. Now just behind this hole, dig out a 3-inch thick slice of soil to the 6-inch depth. Gently lift the slice from the shovel and beat on the back of it with your fist. Observe the cracking on the face of the soil slice. If there are more cracks running parallel to the soil surface than there are running up and down, then you have a case of pasture pans.

Prevent pasture pan formation by providing a very fertile soil so that cows can get their fill in a short time; practice rotation grazing; and provide supplemental pasture, especially in the late fall and early spring.

Surface crusts form mostly on clean-tilled land, but may also form on over-grazed pastures where the raindrop can strike bare soil. The cure is to keep the pasture fertile; do not over-graze, and on cultivated land, keep something on the soil surface at all times to reduce the impact of the falling raindrop. **THE END**

Drying baled hay with a fan

(Continued from page 546)

third layer of bales. The fourth layer can then be stacked over the main duct sealing in the air. Use two timbers across the duct for each bale that is placed lengthwise.

Prevent loss of air . . .

Cover the end of the main duct opposite the fan with heavy paper. This prevents loss of air and excessive drying of the hay beyond the main duct. In this paper tear three or four openings about six inches square so some air will go into the hay which closes the end of the main duct. Make these openings come in the center of the bales and not at cracks between bales. Also, be sure to break joints between bales which seal the end of the duct. This helps hold the air pressure.

Build each layer of bales from the outside in. This keeps the outside smooth and regular. It also throws all irregularities and holes due to variable bale lengths to the inside or center of the stack. Fill any large holes with sections of a broken bale to hold the air and prevent falls. The variation in bale length will cause a rough sided main duct. This helps break up the air stream and aids uniform air penetration.

Break all joints between bales in each layer and between layers also whenever possible. This prevents air from escaping without passing through the bales. It is necessary to maintain air pressure. The air must be under pressure for uniform penetration through the bales. See that no cracks between bales extend directly to the outside of the stack of bales.

Check building requirements . . .

Check floor joists and posts to see that they are strong enough to hold up under the green baled hay. The floor must be airtight or the air will escape downward between cracks or openings rather than upward through the hay. If the floor boards are not tongue-and-grooved, cover the floor with heavy building paper before the slatted floor is placed. Cover open cracks or knot holes with strips of tin or boards.

The fresh air inlet to the fan should be two or three times the main duct across the sectional area. If necessary build a room around the fan to prevent the recirculation of air that has passed through the hay. This can be made of light framing and quarter-inch plywood.

Air escape area in the hay mow should be two or three times as great as the air inlet to the fan room. If possible, open doors and windows on both ends of the barn so the air can escape in either direction. Open all existing hay mow openings such as dormer windows, hay doors, and roof ventilators. If necessary cut large openings in the end walls and place louvre boards to keep out the rain.

Check air flow . . .

Get the slatted floor and the main air duct sealed over as quickly as possible. Then start the fan to take out any heat that has formed in the hay. At first the air coming from the hay will be hot. This simply means that the air is removing the heat which developed in the hay before the fan could be started. It also means that the moisture is coming out of the hay very rapidly because hot air can carry a lot more water than cold air.

In an hour or two the air escaping from the hay will be from 5 to 10 degrees cooler than the air entering at the fan. This drop in temperature is due to the rapid evaporation of moisture which cools both the air and the hay. Thus, no one needs to fear fire when the air is escaping through the hay because the heat is being removed.

If hot spots are found around the outside of the stack it means that the air is not passing uniformly through the hay. Sometimes such spots are found in the corners because some skill is required to place the bales so air will be forced out to the corners and through the bales rather than between the cracks.

The fan should be run almost continuously for the first half of the drying period. Some electric suppliers will want the drier fan to stop from 5:30 to 7:30 p. m. to keep down peak electric line loads. After the hay is about half dried, stop the fan from 5:30 p. m. until 8 a. m. Check the escaping air when the fan first starts in the morning. If no heat is present, the hay is cured.

For health and the constant enjoyment of life, give me a keen and ever present sense of humor; it is the next best thing to an abiding faith in providence.
—George B. Cheever.

After the fan has been stopped for two or three days, start it again and immediately check the escaping air temperature. If heat is present, run the fan a day or two as before and then check again.

Check escaping air . . .

Hay quality will vary directly with the time required to dry. Therefore, the weather during the drying period directly affects the quality of the cured hay. In dry hot weather the hay should cure in three to five days. But if the weather is cool and rainy, from one to three weeks may be required to get the hay dry. If such wet weather occurs in the last half of the hay-drying period the fan should be operated intermittently.

Run the fan whenever the sun is shining. If the sun stays hidden and frequent showers or rainy weather is continuous, run the fan one hour out of every four until the weather clears up.

Check escaping air temperature when the fan first starts to see how much heat is forming while the fan is shut off. If very much heat is evident, run the fan for two hours and then turn off two hours. Remember, the heat in the hay is removed whenever the fan runs for an hour or two.

This intermittent operation keeps the heat down and causes some drying even in wet weather. It also helps to prevent mold development. Under such conditions the color will fade some and Vitamin A will oxidize rapidly. But most of the other food elements will be kept with little loss.

THE END

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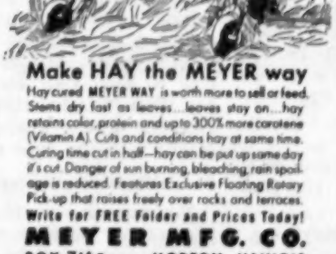

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(DEALERS AND AGENTS WANTED)

DAIRY FARM HOME

which Pots and Pans for you?

Efficient cooking utensils are a very important part of any well-equipped kitchen.

by Virginia Blodgett

MATCHING UTENSILS for "Mother's little helper" are being offered by a popular manufacturer of cooking equipment.

ANY job becomes simpler and more efficient with the proper tools for the job. And when it comes to cooking, well-planned equipment can make the difference between "fun" and drudgery.

Whether you are a bride who is just beginning or whether you have cooked too many meals to ever count, choose your cooking ware with the same care as your stove and refrigerator.

Begin with the basics . . .

If you are beginning from scratch in building your kitchen equipment, don't be hit and miss in what you buy. Save the "frills," the gadget-like utensils, until after you have acquired the necessities for every day cooking. Or if you have been keeping house for many years, some of your old utensils may need replacing. Perhaps you have gone without many of the basics as well as the frills and now are in a position to add to and complete your kitchen ware.

The really basic pieces are:

Sauce pans. At least two, small and large, complete with lids.
Double boiler.
Two skillets. A small and large, with lids.
Dutch oven or large-size kettle.
Coffee pot.
Tea kettle.

Once you have acquired these basic utensils, you can add a few of the "frills" as you go along. It's a real convenience to have an assortment of sizes in your pots and pans. Sauce pans usually range in size from 1 quart up to 5 quarts, skillets from 6 inches up to 12 inches. One fried egg looks pretty lost in a big skillet—the 6-inch size is made-to-order for such small scale operations. A family size coffee pot, 4 to 8 cups size, is a necessity in any coffee-loving household. For company convenience, you might add a big 14-cup size.

Egg poachers, deep fry baskets, and covered sauce pots are other additions you can make to your basics.

And for the household that has everything, there is the new-on-the-market electric automatic skillet. This is a plug-in skillet with a heat control ranging from simmer to very hot.

Decorator touch invades kitchen ware . . .

Modern cooking wear is designed to be highly decorative. Pots and pans are no longer kept stored away out of sight in a lower cupboard or in a special drawer in the stove. Most manufacturers now offer attractive racks or wall hangers so their ware may be displayed in full view at all times.

One line of cooking ware features copper-colored lids as a decorative accessory. Others have copper bottoms to add charm to any kitchen, modern or traditional. There are racks in sizes holding two or three pans ranging up to racks that hold an entire collection of pots and pans, including their lids. One rack holds 10 utensils and has a shelf for coffee pot, tea kettle, and other decorative accessories above.

Other manufacturers hang their utensils on your wall with individual hangers for each pan. One uses a transparent leaf design as a hook. Or you can make your own rack with a piece of perforated wall board with hooks spaced for each utensil.

This trend toward wall storage of kitchen utensils is a real boon to the homemaker with limited cupboard space. And it's a real time and temper-saver, too! No more stooping and fumbling through a lower cupboard for an elusive sauce pan.

Keeping pots and pans in view provides the inspiration for keeping them looking especially bright and shiny new. A little extra attention after each use keeps that new look. Trying to undo the ravages of long neglect can be a discouraging project. The manufacturer's leaflet of instructions will tell you how to keep your utensils as bright as the day you bought them. There are special cleaning agents available that keep copper bright with the wipe of a cloth.

Be uniform in your utensils . . .

You may like to cook in copper, or perhaps you prefer heat-proof glass. Aluminum or another metal may be your choice. Whatever your preference, you will be wise to buy all your utensils in one type and design. You will have more uniform cooking results and a more harmonious kitchen.

It's easy to accomplish this uniformity since most large manufacturers make a complete line of utensils in everything from the smallest sauce pan to jumbo-sized kettles. Some manufacturers offer matching canisters, mixing bowls, and casseroles to complete your all-in-one pattern.

Careful investigation of the merits of each type of cooking ware before you buy will help you make the best choice. Some stores offer cooking schools which display the merits of the various types of cooking ware. This could be beneficial, both to improve your cooking skill and to help you decide what type of utensils will serve you best.

If cost is a big factor, but you still want quality, begin on a small scale and add to your set as you can afford it. Buying a complete set of kitchen ware from a fly-by-night manufacturer is indeed false economy. Beware of cut rate prices on complete sets of utensils. You will pay more if you buy a name brand but you will have the guarantee of quality and long experience behind the product.

Inferior merchandise is usually hard to keep clean and poorly constructed. You can usually look for evidence of shoddy construction in the handle of a pot or pan. It should be made of a substance that won't chip, become hot to the touch, or become loose as the pan is used.

Buying the best cooking ware you can possibly afford is wise economy in the long run. You will be buying lasting beauty and durability with your dollars.

Ask your dealer or consult your manufacturer's leaflet for information on how to care for your kitchen ware. Too harsh abrasives may scratch the surfaces of some utensils. In this case, an ounce of prevention is worth a pound of cure. Soaking sticky, greasy pans in warm, sudsy water immediately after using will eliminate any need for vigorous scouring. **THE END**

From Day to Day

- **How different are today's newlyweds?**
- **A special apron for the new bride.**
- **Give Bill of Rights serious thought.**

by Lois J. Hurley

THIS is the month of brides and there seems to be a bumper crop this year. The bride and groom are younger, too; she's 20, on the average, and he's 22. They haven't much of the world's goods, in most cases, but they are eager to set up their home and have some children as a bid toward security in a securityless world.

The bride plans to work and help get the home started before the first child and in some cases parents help out with money until things are rolling smoothly. Whether this is good or bad can only be judged on individual merits of each case. All things are comparative, anyway.

In Grandma's day, bride and groom were likely to be 16 and 20, respectively; all they had was a team of horses, a wagon-load of furniture and simple farming implements which their parents had given them, their own good health, and pioneer country to set out for. Are things so basically different today for any young couple with their way to make in a world still to be pioneered along many lines? The job of building a home calls for the same fundamental qualities in a man and a woman as it did a hundred years ago.

Aprons . . .

Aprons are as old as history and a fascinating running account of customs and fashions through the ages can be woven around them. The word originally was "napron", from the French "nape" which meant tablecloth. Its function was to protect the dress in cooking, serving, or eating.

An old Polish wedding custom involving aprons has recently been adapted as a pleasant touch at today's ceremony. At midnight of the wedding day, in old Poland, women formed a circle around the bride who removed her veil and tossed it to the crowd, much as today's bride throws her bouquet. The bride was then given an apron and housecap of white with fancy embroideries to signify her new duties.

Since the modern bride's first homemaking task is the cutting of her wedding cake, in some places the custom has started of having the maid of honor slip a beautiful, elaborately trimmed apron on the bride just before she performs this duty. It may be made of taffeta, organdy, nylon, net, satin, or any of the glamour fabrics, or it might even duplicate the material and trim of the wedding dress. It becomes a treasured keepsake along with the veil and head-piece and is certainly something that would be fun to make for any bride.

Sisters under the skin . . .

Last year the Supreme Court of the United States ruled that the ban on equality because of the color of skin should be abolished in this nation. Negroes should be given the same opportunities of education and social culture as whites and their segregation should end.

This is not a simple thing to enforce by law. It runs into one of the deep-rooted snags of human nature formed by years of prejudice that got off to a misguided start and rolled up into a huge mass of misunderstanding over the years.

Without doubt, many of our readers live in the deep south states where the Negro is a different kind of a problem than we know him to be in our northern localities. Yet, I have lived in both "Jim Crow" and non-segregated states and decent fair treatment of our colored people is certainly possible in both places.

Personally, I have always felt that the natural dignities and fine qualities of these people would emerge if given the chance. Often I have ridden in railroad coaches with Negroes to St. Louis and on boarding trains for the South, seen them have to go to the portions of the train marked "Colored". Yet we continue to breathe the same air and look at the same newspapers and buy the same sandwiches and drink the same coffee on both sides of the color-division line. If you had cut us, our blood would have been the same red and we would have experienced the same feelings and responded to the same stimulations. Where, then, lay the differences, other than where we had imposed them?

I have had colored help with my housework for the last 20 years. Five young Negro women have worked for me in that time and, with one exception, they were superior to much of the white help I have had. Every one of them was intelligent enough and capable of holding down a much better job than housework, but there were no opportunities open to them.

The inevitable question now follows: If I think so highly of colored people, would I want my daughter to marry one when she grows up? Certainly not; neither would any intelligent right-thinking colored person want to marry my daughter. I sincerely believe that education and an equality status for Negroes will abolish the threat of mixed marriages. They have, in some instances, been gestures of defiance and vengeful expressions of deepseated frustrations. Very occasionally they may have been truly tragic love matches. In other cases they have been the stupid acts of trashy people on both sides!

Give colored people a chance and pride in themselves, and a wish to preserve their own race and build up a culture and tradition that will offer a long-range contribution to civilization will develop, or I miss my guess.

Beg pardon . . .

In the issue of April 25, I instructed you to add lemon pudding mix **warm** to whipped cream in making the filling for the angel food cake that is so delicious. I was mixed up in my mind with the way you add the mix to beaten egg whites for lemon chiffon pies. Add it **cold** to your whipped cream.

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Fashions for Summer

No. 2335. Long-torso look is deftly achieved by a low-placed yoke at the hips, with matching neckline yoke, widely-flared skirt. Junior sizes 9 to 17. Size 13: 3¾ yds. 35-in.

No. 2675. Halter-necked sunback style with a gaily flared skirt and a flattering wrapped waistline is a really wonderful sun-seeking charmer. Sizes 12 to 40. Size 16: 5¼ yds. 35-in.

No. 2660. Make this gay shirtwaist design with its jaunty pockets in sleeveless or short-sleeved versions with matching or contrasting collar. Sizes 12 to 40. Size 16: Style shown, 4⅝ yds. 35-in.

No. 3024. Gay sleeveless blouses are delightful with all your separates from skirts to Bermuda shorts; so easy to sew, too. Sizes 12 to 40. Size 16: Collared style, 2 yds. 35-in. Tie-shouldered style, 1⅜ yds. 35-in.

No. 2897. Square-necked design with shirred shoulder yokes, wide, feminine skirt is striking in its simplicity and so flattering. Sizes 10 to 20. Size 16: 3¾ yds. 35-in.

No. 2316. Tie-shouldered, flare-skirted, V-necked style is so pretty and youthful; proportioned for the shorter, fuller figure. Sizes 12½ to 22½. Size 16½: 4½ yds. 39-in.

No. 2682. Wonderful side-buttoned sunsuit with matching bonnet is so practical for playtime; opens out flat for easy ironing. Sizes 1, 2, 3, 4. Size 2: 1¼ yds. 35-in. 3 yds. ruffling.

No. 2156. Youngest miss of the household has new fashion, too. She'll love this full-skirted style with the collared, weskit-cut bodice and lowered-waist look. Sizes 2 to 8. Size 4: 2¼ yds. 35-in.

No. 2264. Narrow-yoked, all-in-one cut style is so pretty; can be made in a wink without waistline seam. You'll use it for a multitude of purposes. Sizes 12 to 40. Size 16: 3⅛ yds. 35-in.

No. 2318. Slimming style with button-accented sweetheart neckline, skirt with moderate fullness, its own cap-sleeved bolero, has flattering, slenderizing lines. Sizes 12 to 48. Size 18: Dress and bolero, 5⅞ yds. 35-in.

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SIMPLE BUTTER SAUCES add flavor and eating enjoyment to vegetables. Food nutrients are increased with a gourmet's touch.

It's better with butter

by Marian Pike

OUR great grandmothers knew butter was indispensable for their famed cooking. So do the finest cooks today. Recipes old, recipes new, from around the world produce distinctive results with butter.

With fresh vegetables in plentiful supply from garden or market, now is a particularly appropriate time to serve them with interesting butter sauces which will add both enjoyment and nutritional value.

Asparagus is pictured here, but so could green beans, broccoli, or any greens. Here are butter sauces which combine interestingly with the green vegetables!

Asparagus with Buttered Crumbs

Melt **3 tablespoons butter.** Stir in **1¼ cups fine dry bread crumbs.** Cook over low heat until crumbs are browned. When asparagus is ready to serve, sprinkle buttered crumbs over the servings. Makes enough crumbs for 6 servings. (2/3 cup of grapenuts may be substituted for the bread crumbs.)

Lemon Butter Sauce

Melt **½ cup butter** (1 stick) in saucepan over very low heat. Stir constantly to prevent foaming. This will give clear, unclouded butter.

To melted butter, add **1 tablespoon chopped parsley** and **2 tablespoons fresh or bottled lemon juice.**

Serve at once in butter bowl with ladle, or spoon directly over hot cooked vegetable.

Amandine Sauce for Vegetables

Melt **¼ cup butter** and saute (lightly fry) **¼ cup shredded blanched almonds** in it until they become slightly browned. Serve over asparagus. Enough for 6 servings.

Mushroom Butter Sauce

Melt **¼ cup butter** in skillet. Add **¼ pound fresh mushrooms** which have been cleaned and sliced. Sprinkle with salt, cover, and simmer 5 to 10 minutes until mushrooms are tender. Pour over 6 servings of any hot, drained cooked vegetable.

Other seasonings which may be used with butter for vegetables are: chives, parsley, garlic, celery seed and any other fresh or dry herbs. Chopped fresh mint is often combined with melted butter and served over cooked new peas.

Hollandaise Sauce

If green vegetables are spurned by your family when served plain, you may find them persuasive when dressed up with Hollandaise sauce. Here is a relatively simple recipe for Hollandaise. I won't say it is never-fail, but it can be very successful if the recipe is carefully followed:

Melt **½ cup butter** (¼ pound) over gentle heat. While butter is melting, beat **2 egg yolks** until thick.

Mix in **½ teaspoon salt** and a **dash of Cayenne.** Then beat in **3 tablespoons** of the melted butter until well mixed and stiff.

Continue beating and add **1½ to 2 tablespoons lemon juice** and the rest of the melted butter, a few drops of each alternately, until all has been added.

If you try to add the lemon juice and melted butter too rapidly, your sauce will lose body and go thin again. This makes 1 cup of sauce.

To use sauce, heat it in top part of double boiler over hot water, stirring constantly. Serve at once on hot broccoli or other greens.

For company meals, you may make the sauce early in the day, and then heat it and serve when desired.

You and I know the ABC's of butter, but if anyone should ask what butter is tell them it is the concentrated fat of milk, endowed by nature—and the cow—with a flavor never duplicated, with abundance of Vitamin A, and with the creamy natural yellow of milk's fat.

How should butter be cared for? Keep it clean, cold, and covered to protect its delicate flavor and texture.

Serve butter attractively. An immaculately clean butter dish is a mark of good taste whether it's a plate or a covered dish.

186. Button-seat overalls for the 6 months, 1, 2, and 3-year-olds are decorated with pussy willow branches and tiny kittens in grey, blue, and brown transfers. Just iron on. Please order by size.

352. Blue, white, or pink linen; red, white, or navy silk shantung in a piece measuring 16 by 20 inches makes this one piece, launderable hat. It's perfectly flat, has two loops at back which go over one button. All instructions included.

352

158. One yard of pale pink, grey, or lavender organdy or smooth cotton makes apron; color transfer trim of lilacs with green leaves. Cutting, sewing, transferring instructions and transfers included.

158

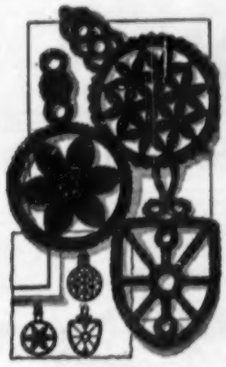
505. Delicate apple blossoms with pale pink flowers, pale green leaves and stems in these no-embroidery color transfers. Just iron on. 32 motifs from 4-inch sprays to single 1-inch separate blossoms. Use on summer place mats, towels, blouses, frocks. All instructions included.

505

151. Lovely, big, (38-inch diameter) circular white wool shawl crocheted just like a gorgeous oversize doily; folded over to form a cape and sprinkled lavishly with pearls. Without pearls, a perfect bed cape.

151

618. New wrought iron crochet is perfect in modern room settings. Three handsome "trivets" crocheted in heavy black thread to use as hot pot mats, kitchen wall decorations, or gifts. Actual size reproductions. All instructions included.



618

313. Peacock chair set. All done in filet crochet and handsome as can be is this pure white chair back and arm set. You'll love making it; pattern gives a large dot-and-space filet chart plus instructions.

313

300

300. Seven motifs to be embroidered in yellow, orange, brown, green, and red tell amusing story of "Tony, the duck" on his vacation. Use transfers on towels, curtains, and crib spreads. Motifs 6-by 7-inches; all instructions included.

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POULTRY

by H. H. Alp

Egg detergent sanitizers?

I HAVE never been sold on washing eggs as a regular practice. There is no substitute for a naturally clean egg. And a clean egg, in my judgment, may have some minor specks on the shell.

However, washing is a practice followed by a good many poultrymen, and there is considerable interest in how to do it correctly. If it cannot be done correctly, it should not be done.

The following excellent summary on egg washing is recommended by the North Eastern Poultry Producers Council:

"Much is still to be learned about cleaning eggs by washing. The process is still controversial, among experiment station men and researchers, as well as market men. The poultryman should look upon washing eggs as a privilege which entitles him to a better appearing product, and considerable labor saving, but only at the expense of careful work and sanitary control.

"The principles involved, as we know them today, are these:

"1. The egg is perishable, an excellent food for growth of bacteria.

"2. The bacteria which causes spoilage are present everywhere, especially in the soil; grow rapidly when given food, moisture, and warmth; and move by swimming in water.

"3. The eggshell is porous, and bacteria can move through it when moisture is present. This movement is helped by the suction created by cooling the eggs in cool water. The movement is hindered by the pressure created by warming eggs in warm water. Always have any solution used with eggs warmer than the eggs. Recommended temperatures are 110 to 120 degrees Fahrenheit for immersion.

"4. There is no known practical method of killing the bacteria, once they are inside the egg. Therefore, the objective is to prevent the bacteria from entering the eggs. This can be done by producing eggs as clean as possible, keeping them clean, and exposing them to as little danger of infection as possible. Keep everything that comes in contact with eggs clean and sanitized, including the room in which eggs are kept. Clean and sanitize the eggs as promptly as possible after cooling.

"5. Since washing supplies the necessary water for the bacteria to swim, and since this water obviously becomes infected, the wash solution should contain an approved sanitizer to kill the bacteria that are washed off into it, and to prevent the transfer of the bacteria from one egg to another.

"6. Sanitizers that are available today, and which are considered safe to use with human food products are used up as they do their job and eventually become ineffective. The solution must be renewed frequently enough to maintain the killing power of the solution. (For advice on satisfactory detergent sanitizer compounds, consult the poultry department of your State Agricultural College.)

"7. The eggs should be dried promptly and packed only when thoroughly dry in clean, preferably new, material.

"8. In no case should eggs be immersed longer than is necessary to clean them and, in any event, not more than three minutes. Two minutes is better. Follow the instructions for the method you use."

Holstein association registers 4,000,000th female

WASHINGTON BOY, Leonard C. Engle, receives the registration certificate on Vernway Allah Catherine, the heifer calf with the honor of being "Miss 4,000,000th Holstein." Presenting the certificate is the former owner, Iver Youngquist, of Bow, Washington. The heifer was sold at a Junior Calf sale in Puyallup, Washington. The four million females, together with the 1,250,618 males that have been recorded by the Holstein association, gives a grand total of 5,250,618 animals that have been registered to date.

SWINE

by R. H. Grummer

What about Landrace?

A relatively new meat-type hog, it can make a real contribution to commercial hog production.

I WISH I had all the answers, or even a majority of them. "Everybody" is talking and asking about Landrace hogs — both as a breeding stock enterprise and for use in commercial hog production.

Let's consider the former first. There are two major reasons for producing breeding stock. One, is to make money and the other is to contribute toward the improvement of livestock. Too often the desire to make money is done at the expense of improving the stock. This is particularly true when the demand exceeds the supply. This is presently the situation with Landrace hogs. That is, there are more potential buyers for more hogs than there are hogs available.

When this kind of a situation exists one finds that some buyers aren't very particular about the quality of hog they buy and consequently the seller isn't too particular about the kind he offers for sale. Consequently, there is little selection or culling practiced and the breed as a whole may deteriorate rather rapidly. I don't know that this is true, or will be true of the Landrace hog. Let's hope that the breeders of Landrace hogs will practice selection on a sound type and production basis and reject the temptation to sell every animal regardless of merit.

What is there to gain? . . .

What does a person have to gain by going into the purebred Landrace business? Let's look at it as a short-time venture. There should be a good demand and also a good market price for Landrace breeding stock for the next three or four years regardless of the merit of the breed. The need for, and the publicity that has been given the meat type hog has helped popularize the Landrace hog which is known as a bacon breed.

This, plus some of the good production records credited to the Landrace has aroused the interest of many hog men. It is my opinion that it will take three or four years before the majority of the interested people will have had an opportunity to try the Landrace hog. Therefore, with normal success, a purebred enterprise should be financially successful over the short term. This would mean getting into the business within the next year so as to have surplus stock for sale before the initial interest and curiosity dies down.

Success depends on breeders . . .

What about the long-time venture of raising purebred Landrace? Only time will give the answer. The true tester of new breeds or strains are the commercial livestock producers. History has shown that if a new kind of hog lacks the necessary merit, it "lasts" only about five or six years. The length of time that the Landrace breed will "last" will depend on the general excellence of the breed and the kind of job that the early breeders in America will do in selection and improvement.

The breed has existed for many years on continental Europe. If our American breeders will develop them with an outlook for the future rather than to scheme only for immediate financial gains, they could become one of our leading breeds of swine.

Best for commercial hogs . . .

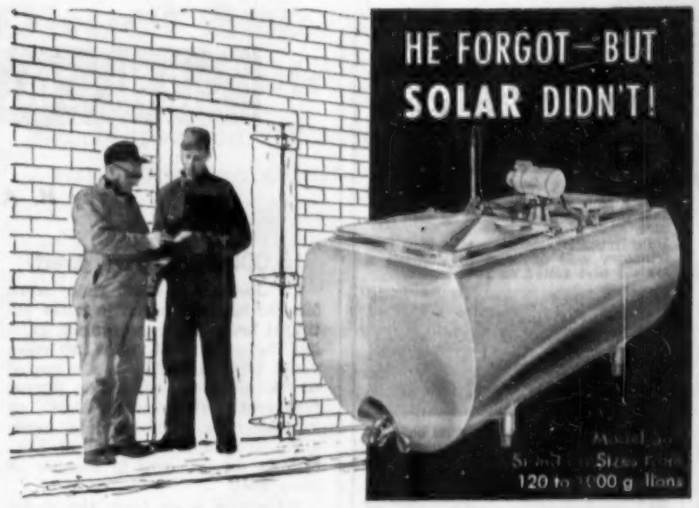
What about the commercial pork producer? Landrace would seem to have their greatest usefulness for commercial hog production in a program of crossing with other breeds, rather than as a straight breed. Theoretically, they should cross well with the breeds developed in America. I am speaking of a conventional two-breed or three-breed cross, using purebreds to begin the crossing program and alternating the use of purebred sires thereafter.

Experimental evidence, using Landrace hogs that were brought in a number of years ago, suggests that the Landrace breed can make a contribution to commercial hog production. However, much more information is needed on how to best use them in a swine breeding program. Many of the newly imported strains have not been tested in this country and may be quite different genetically from those of the original importation of Landrace hogs from Denmark.

We need observations on farms, the place where a breed undergoes its major test. If I were a commercial hog producer I would not hesitate to try the Landrace in a breeding program, combining them with one or two other breeds. The price of breeding stock is too high at the present time to use the straight breed solely for the production of market hogs.

The Landrace breed is perhaps no different from any other breed in that there is much variation within the breed, both good and bad. For whatever purpose they may be used, purebred or commercial, select them carefully.

"I wish you'd do something to make things move faster around here."



Right after Elmer Hanson of Elk Mound, Wisconsin, shown at right, got his Solar tank, he just plain forgot and left it on manual operation all one night. Next morning the gauge had dropped to 33 degrees, *but there was no ice!* Solar's exclusive "Controlled Expansion" refrigeration control system isn't just a name. "Controlled Expansion" is an engineered system that absolutely assures against ice formation under any conditions, and helps make it actually cost less to own and operate a Solar.
Shown with Mr. Hanson is Marshall Horlacher, Dolly Madison Dairy tanker driver of Eau Claire, Wis. He had just read the electronic liquid level indicator on Mr. Hanson's Solar, taken a butterfat sample, and is now giving him his milk receipt, right at the milk house door. This bulk pickup system gives farmers the satisfaction of doing business right on the farm.

SOLAR COSTS YOU LESS TO OWN!

Be sure and see Solar—the tank that costs less to own—and the only tank with Controlled Expansion. See it at your Solar dealer's, or write the Solar Farm Tank Dept.—6600 South Narragansett Ave., Chicago 38, Illinois for full information.

SOLAR FINEST IN FARM TANKS

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It's a tool of 101 uses. This easy-to-attach manure fork for instance will more than pay for the loader. A slide-on bottom and sides converts it into an all-purpose utility bucket.

STACKS HAY

The Davis push-off sweeprake stacker attachment handles tremendous loads and stacks out at 21'. It's just another example of the utility of the Davis Loader and Davis attachments.

Whatever your loader job is, it will pay you to buy the Davis Loader. It has no equal in quality and performance, and the price is less than you would expect to pay.

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IRRIGATION Pumping Unit
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HALE FIRE PUMP CO.
Conshohocken, Pa.

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No. 17—FOR HORNS. Adjustable. $9.50 per dozen.
No. 88—DOUBLE PLATE NECK CHAIN. Upper portion strap, lower portion chain. $14.50 per dozen.
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ARTIFICIAL BREEDING

by H. A. Herman

5,000,000 cows bred

On January 1, 1955 there were 593,190 herds enrolled in 1,476 artificial breeding organizations. During the year 1954, 5,155,240 cows were bred artificially. Compared to the previous year, these figures represent a decrease of 13,807, or 2.3 per cent in number of herds enrolled, and an increase of 310,018, or 6.4 per cent in number of cows bred.

Wisconsin again leads the states in number of cows bred in artificial breeding organizations, with 974,414 cows bred in 1954. States in which 40,000 or more cows were bred in artificial breeding organizations in 1954 are, as follows:

Wisconsin	974,414
Minnesota	453,099
Pennsylvania	408,922
New York	380,395
Ohio	324,445
Iowa	303,164
Illinois	273,955
California	226,517
Michigan	210,598
Indiana	186,930
Missouri	129,103
Washington	119,931
Massachusetts	79,127
Idaho	74,525
Vermont	72,919
Kentucky	65,518
Kansas	62,359
New Jersey	60,858
Maryland	52,979
Tennessee	51,475
Maine	48,609
Nebraska	47,621
North Carolina	45,505
Connecticut	43,968
Virginia	42,160

Farmers buy bull stud

In a reorganization program just completed, Dairy Genetics, Des Moines, Iowa, a bull stud privately owned by a group of stockholders, becomes a true central cooperative artificial breeding association, incorporated as Iowa Breeders Co-op.

Dairy Genetics was organized in 1944 by farmer committees and their county agents in the Des Moines aren. The original plan was to set up a central cooperative with herd owners paying the usual $1 per cow membership to the central organization.

The objection was raised that there was no local county control. Dairy Genetics was then incorporated as a semen producing business and the local groups as semen selling businesses.

The original board of Dairy Genetics was composed of four county agents, Herman Hayes, Des Moines, now sire analyst with Minnesota Valley Breeders, New Prague, Minnesota; Roger Leinbeck, Adel; Harlan Geiger, Newton; Lael Moon, Davenport; and two other Polk County men, A. H. Beckhoff and B. L. Brown, who owned the farm where the bull stud is now located.

This group promised the county associations that, if the time came when they could join together as a central cooperative, they could purchase the interest of Dairy Genetics. That is what has been done.

The interest of the local associations to own their own bull stud is reflected by the fact that 98 per cent of the membership voted to buy the bull stud and form Iowa Breeders Co-op.

Greg Raps will continue to serve as manager, and Lael Moon, one of the founders, will continue as sire analyst. A board of directors representing the owner-members has been elected and is functioning.

Annual convention in Seattle

The eighth annual convention of The National Association of Artificial Breeders will be held August 14 to 17 in Seattle, Washington. This is the first time that a national gathering of personnel from artificial breeding associations, directors, breed representatives, and college workers throughout the United States, Canada, and foreign countries has been scheduled for the west coast.

The breeding associations in Washington, Oregon, Utah, Idaho, with assistance from California and Montana, are joining forces to make this an outstanding convention. Jay Harris, manager of Evergreen-Northwest Breeders, Burlington, Washington, is the program chairman.

The formal program will feature panel discussions: "Measures for Controlling Sire Health," "A Recognition Plan for Sires Proved in A. I.," and "Frozen Semen Developments".

Feature addresses will stress: "Selling the Program," "Tax Laws Affecting Breeding Associations," and "Sterility in Dairy Cattle." There will be numerous committee reports, the executive secretary's report, the president's address, election of two directors, and routine business.

A tour will be made of Carnation Milk Farms the afternoon of the 17th, with dinner served at the farm. On Thursday, the 18th, a trip to some of the outstanding Guernsey herds in Skagit County has been arranged. A salmon barbecue will be held at the termination of this tour.

The Hotel New Washington, Seattle, will be convention headquarters.

Many persons planning to attend the convention are arranging to visit national parks such as Yellowstone and Glacier, and famous Lake Louise at Banff, British Columbia. Some will tackle the fishing, as the famous salmon runs are usually there in August.

"I'm not. I just jumped in to avoid those bees heading this way!"

Breeding conference held

The fifth North Central Conference on Artificial Insemination was held April 14 and 15 in Chicago, Illinois. The meeting was attended by 96 people from 12 states and Canada with 26 bull studs represented.

Some of the topics discussed were: New developments in the A.B. business, preparing fair exhibits, collecting delinquent accounts, promoting and selling the A.B. program. The executive secretary of N.A.A.B. reported six new members added since January 1, and an average of 14,000 cows inseminated per day in the United States.

The 1956 conference will be held in Des Moines, Iowa, about the middle of April.

Milk 35 cents per glass

One of the astounding events of the North Central Conference was the price of milk in Chicago. One hundred half-pints of milk were ordered up "sans glasses," open your own and drink it out of the bottle. The bill? A modest $35 plus a $1 tip to the belihop, who muttered "Cheapskates!" At least the people in attendance learned that milk rightfully may be called "nectar of the gods."

Pyrenone*
Controls Dairy Insects Toughest to Kill

Pyrenone kills not only horn flies, stable flies and deer flies, but horseflies (Tabanids), too. Dairy cattle sprays based on Pyrenone provide the *most* effective control of *all* dairy insects. Pyrenone sprays are non-hazardous, can be used safely in the milk room as in other parts of the dairy or farm. Specify Pyrenone or look for the names *piperonyl butoxide* and *pyrethrins* on labels if the name Pyrenone is not used.
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PAINT IT ON
Dr. Naylor's BLU-KOTE

HANDY HINTS

USED OIL PRESERVES IMPLEMENTS

When it is necessary to leave plows, discs, etc., in the field overnight, coat the moldboards, discs, and other exposed working surfaces with oil. If it rains during the night, the oil protects these surfaces and there is no delay in starting work in the morning.

Iowa. H. A. WELSH.

BUILDS FEED TROUGH WITH BARRELS

Split the drums down the middle and weld the sections together and you have a perfect livestock feed trough. You can use it for a water trough if you prefer.

Maryland. ROB AIKEN.

COWS KEEP FEET CLEAN

George Scherrubles, a 60-cow dairyman in Washington, uses a foot bath for his animals. They splash through 10 inches of water as they enter the milking barn, coming into their stalls with clean feet and hocks. The milkers say it makes for cleaner and faster milking, and "it's easier to keep the barn clean."

Washington. L. J. SMITH.

USES GARAGEMAN'S CREEPER

This little truck, made from a garageman's creeper, saves buckets and makes moving the teat cup rinse easy. Dairyman J. W. Abrams of Atmore, Alabama says the $10 investment for building the carrier has been repaid many times by cutting down on bucket wear. A one-inch metal band is fastened to the top of the truck to hold the buckets in place. The truck can be moved around in the barn by pushing it with the foot.

Alabama. JASPER JERNIGAN.

ADJUSTABLE SUPPORTS

Adjustable machine supports were built from salvaged parts. Old discs form bases, and telescoping gas pipes form stands. Pin is inserted through holes at desired height. Used on Adam Schoenborn farm, Montgomery County, Illinois.

Illinois. C. F. MARLEY.

MANURE WHEELBARROW

Rubber - tired, roller - bearing wheels welded to the stands of a wheelbarrow make cleaning the gutter of a stanchion dairy barn much easier on the G. H. Galbreath farm in Illinois. The wheelbarrow can very easily be pushed along the gutter without lifting.

Illinois. L. R. FRYMAN.

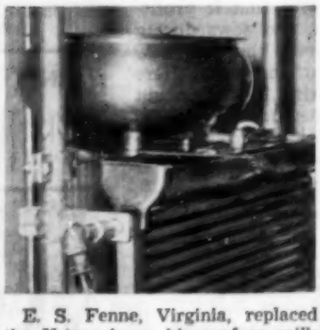
PROTECT GRAIN SACKS

To make sure your empty grain sacks will not be damaged by rats, roll them in a sheet of tar paper and tie securely with binder twine.

MRS. ERNEST MILLER.

Michigan.

FUNNEL FOR MILK COOLER



E. S. Fenne, Virginia, replaced the V-trough on his surface milk cooler with an old separator bowl. This change eliminates splashing; there are no corners to clean, and it lasts forever.

Maryland. G. E. MCVICKAR.

Direct Expansion Milk Cooling

Eliminates the "Milkhouse Middleman" —Cuts Cooling Costs

Choose MILKEEPER™

BULK FARM COOLING TANKS

CP FACTORY-SEALED MILKEEPER*

The only fully sealed bulk farm cooling tank. As trouble-free and dependable as the most modern home refrigerator—as easy to install as a food freezer. In 80, 150, 200 and 250-gallon capacities. CP MilKeepers* with remote condensing units in 300 to 1000-gallon capacities.

• CP MilKeeper* *Direct Expansion* Bulk Farm Cooling Tanks cool milk by direct contact with the big refrigerated area in the bottom of the tank. Eliminates "Milkhouse Middleman" *—no making ice, to chill water, to cool milk.* Instead the refrigerant, Freon, does the job—directly, quickly, efficiently, economically. This is the same principle used in your household refrigerator!

The compressor runs only a comparatively short time to bring milk down to 38-40°. Then it operates only occasionally as needed to hold this temperature. CP *Direct Expansion* cooling *costs less* because the *compressor runs less.*

When you choose a CP MilKeeper*, you get time-proven engineering and quality, backed by CP, the company that has been making both tanks and refrigeration for generations—pioneers in stainless steel fabrication—one of the oldest and strongest manufacturers in the dairy industry.

Choose a CP MilKeeper, the tank that's years ahead, for the years ahead.* Check with your nearest CP Dealer or mail the coupon for more information.

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The easy way to use molasses. Dry, free flowing, no waste. Takes less, costs less because it's concentrated. Write for folder.

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Lumbermen who depend on horse power...depend on

ABSORBINE

● In the Maine woods, horses can't be beat for yarding logs. And the men who run these operations know there's no liniment for horses more effective than dependable Absorbine.

A finishing rub with Absorbine can prevent lay-offs due to galled shoulders or sore necks. By treating bruises and swellings with Absorbine early, it's possible to prevent a more serious case of ringbone or bog spavin. Does not blister skin. Only $2.50 for large bottle at all druggists.

W. F. Young, Inc., Springfield, Mass.

YOUNG DAIRYMEN

BASIC FARM PRACTICES

Train and groom for the fair

TWO months before the first show, tie your calf in clean, well-ventilated quarters. This makes it easy for you to do the grooming and training. In this way the calf will get used to being tied.

After she has been tied for two or three days, replace the tie halter with a lead or show halter and start training her to lead.

Taking the animal out for a short walk each day will accomplish much more than a two hour "tug of war" once a week. Lead her out to water or to a night pasture each day. The first few days she may have to be "tugged along" or turned in circles. After a few short sessions she will get the idea of being led. Then train her to walk slowly with short steps and to stop and start at your signal. Teach her to keep her head up and to be alert. Stop often and train her to stop with feet well placed.

Brush daily during the fitting period. Use a rubber curry comb or massage briskly by hand. Then brush off the loosened hair with a soft brush using short, quick strokes, and finish by brushing the hair into place.

A light blanket will help keep your calf clean during the fitting period. The blanket also protects her from flies and helps to loosen long hair.

Give your calf a good bath when you start grooming her. Several washings may be needed during the grooming period and the last bath should be close to show day. The tail and stained white areas may need more frequent washing. Too much washing removes much of the natural skin oil. When giving a bath, soak the animal with water; lather with mild soap; scrub thoroughly and then rinse.

The use of the clippers should be kept to a minimum. The head, neck, and tail are the only parts trimmed close on calves. Clip the front of the face on an imaginary line from the muzzle to the eye. Then forehead, ears, and poll are clipped blending under the halter strap at the top of the neck. Leave plenty of switch on the tail.

TRIMMING FEET, when properly done, will help your heifer to walk and pose to best advantage.

Foot trimming is important. When properly done, it will help your calf to walk and pose to advantage. Long, uneven hooves will cause crooked legs. To prevent this, the feet should be trimmed so the legs will stand squarely under the corners of the body. Do this early in the fitting period so your calf learns to walk and pose normally. It is wise to get help from Dad or another club member for this job.

The only essential equipment is a sharp knife. A pair of nippers, woodchisel, and a rasp are helpful and make it easier. Foot trimming can be done without throwing the calf. First shorten and round the hoof with the foot on the ground. Then lift the foot and trim the sole.

—J. W. Crowley
—R. P. Niedermeier

Feed bred gilts a good ration

PROPER feeding of gilts and sows during the gestation period makes the difference between profit and loss. Remember, the gilt must grow as well as produce a litter, while the older sow needs only to maintain her body weight and develop her litter. Experiments show that gestation feeding affects farrowing. This is shown in the following table:

	Av. birth wt. of pigs	% of strong pigs	% weaned
	lbs.		
Corn + pasture	1.85	41	34
Corn + pasture with protein supplement	2.42	85	67

A 2½-pound pig at birth has 5 times greater chance of being weaned than a 1½-pound pig.

Let us compare the rations for gilts and sows on dry lot.

Sows	Gilts
lbs.	lbs.
500 ground corn	500 ground corn
300 ground oats	300 ground oats
150 alfalfa meal	150 alfalfa meal
25 soybean oil meal	50 soybean oil meal
25 tankage	50 tankage
10 bone meal	10 bone meal
5 trace mineralized salt	5 ground limestone
	5 trace mineralized salt

Note that the protein supplement has been doubled for the gilts, and that additional limestone to furnish calcium has been added.

A 250-pound gilt will require about 4 to 5 pounds of this mixture, while a 500-pound sow needs only 6 or 7 pounds. When your sows are on pasture, eliminate the grain until the last 8 weeks. Be sure to provide them with 1/3 to 1/2 of a pound of the protein mixture and the gilts 1/2 to 2/3 pounds per day. In addition, feed them 3 to 4 pounds of grain ration necessary to keep them gaining.

More and more of you will find it profitable to self-feed your gilts and sows during the winter. This will give even the timid sow a chance to get her share of the ration. Here again the difference in ration is the amount of protein and mineral added for each, using second-or third-cutting alfalfa to control the condition of the sows on self-feeding.

A good basic ration would be:

For sows	For Gilts
lbs.	lbs.
225 ground corn	300 ground corn
300 ground oats	300 ground oats
400 alfalfa meal	300 alfalfa meal
50 soybean oil meal	50 soybean oil meal
25 tankage	50 tankage
10 bone meal	10 bone meal
5 trace mineralized salt	5 trace mineralized salt
	5 ground limestone

—F. J. Giesler

Build roosts for chicks

WHEN the chicks are 4 or 5 weeks old, put the roosts or perches in place. Make these of two by fours, laid flat. This type of roost is best from the standpoint of preventing crooked breasts.

The brooder house should have roost supports along the walls at two levels, so the roosts can be placed at the low level first until the birds have learned to use them. Then they can be raised to the higher level. Keep all the roosts at the same level at any one time, because if they are at different levels the chickens will try to crowd onto the higher ones.

Discourage roosting on the equipment kept in the house. If you keep a feed storage can or other feed container in the brooder house, you may find that the birds are roosting on it. You can prevent this by making a cone-shaped top or other slanting top for the feed-storage can or other equipment which has to be kept in the house.

Some poultrymen now raise their pullets and house their layers without any roosts at all. Chickens seem to be able to get along all right "roosting" on the litter. If you follow this practice with growing pullets, there is a greater chance of crooked breasts than if they are provided with good roosts. Also, there is a greater problem of roosting on equipment, especially after the birds are moved to the laying house, where they are likely to roost in or on the nests.

—H. R. Bird

Cut hay early

MOST hay is a mixture of grasses and legumes. However, when we speak of the stage of growth of hay to be cut we are usually speaking with reference to the legumes.

High-quality hay is one of the best sources of feed for our livestock. The stage of growth at which the crop is cut has considerable to do with the quality. At the younger, immature stages the crop is higher in total protein and lower in fiber. High protein and low fiber means high-quality hay.

The percentage of protein drops and the percentage of fiber increases in the advanced stages of maturity—representing low quality feed.

Unfortunately, cutting the crop too early is detrimental to the plant. Cutting it at a later stage is beneficial to the plant but detrimental with reference to quality. A practical compromise is to cut the hay crop, like alfalfa, in the early bloom stage.

There are indications that with heavier and more frequent applications of fertilizer and the use of insecticides to control destructive insects, we may come to cutting our hay crop earlier and more frequently. It also results in less damage to the yield and longer life of the stands than we have experienced in the past.

—F. V. Burcalow

BARNEY FARMLAN

"I'm giving them each a shot to prevent tooth decay."

You can save $125 per month

(Continued from page 543)

It will be observed that the table lists protein as "digestible protein." In figuring rations for cows, this value is used instead of "total protein," because it combines the amount and availability of protein.

Lower percentage of protein needed with poor-quality than with high-quality roughages . . .

In lowering feed costs it helps to feed only as much protein as is needed. Although overfeeding on protein is not harmful, it is wasteful and expensive. At this time, high-protein feeds cost a good bit more than low-protein feeds, such as the cereal grains.

Many dairymen are feeding mixtures containing more than 16 per cent total protein. However, the Cornell tests indicate that, when enough concentrate is fed with the commonly used roughages to give cows enough energy, there is never a need for more than 16 per cent protein in the grain. Often-times, 10 to 12 per cent is plenty.

Since poor-quality (or late-cut) forages are generally lower in protein, the belief is often held that

> **A failure is not someone who makes mistakes but someone who refuses to learn from them.**
> **—Sydney J. Harris**

cows eating poor-quality roughages need a high-protein grain mixture. Although, at first glance, this seems logical, it is exactly **opposite to the truth.** The reason it is wrong is this:

As forages mature and their protein content falls off, the intake and energy value also drops. These events cause an increased need for concentrates to provide enough energy. But increasing the amount of grain tends to **lower the percentage of protein needed** in the grain.

Where dollars are saved . . .

It is not always possible or practicable to cut forage early. There are many disadvantages. On the other hand, you have to balance against these disadvantages the amount of grain that you can replace with early-cut roughage.

For example, let us assume you are feeding 30 cows producing 40 pounds of milk per day. If you feed them enough grain mixture to give the cows enough energy, it would cost (at present prices) up to $170 more per month for grain with roughage cut July 1 compared to hay cut June 15. If you cut your crop July 15, it will cost as much as $250 more than it would had you harvested June 15.

These figures are not net differences in feed costs because they include only the additional grain you would have to buy for feeding with late-cut roughages. More early-cut roughage would be eaten and the yield of dry matter per acre might be less. Despite this, the total nutrient yield per acre for the season is not greatly affected unless the crop is harvested on about June 1 or earlier in the Northeast.

Generally, when the first cutting is taken this early, the sacrifice in nutrient yield is made up by cuttings later in the season. First cuttings made as early as June 15 in the Northeast contain as much or more total nutrients as first cuttings made at a later date.

Your net savings would be somewhat less than the figures given above, because differences in roughage intakes and costs have not been included. Since cutting time does not enter into the federal hay-grading system (except incidentally), you will not find as much difference in the prices of hays cut at different times as you will in their feeding value.

All of the best forage harvesting and curing equipment in the world and the most perfect weather will not make a good roughage out of late-cut forage.

Word of caution . . .

To put the results of these experiments to work on your farm, it is necessary that you know their limitations. The kinds of forages studied are those commonly used in the Northeast. Some of them were grown in pure stands while others were in mixtures. During a six-year period some of the forages were grown in good growing seasons and others in drouthy seasons on soils of varying fertility.

If you are located in a different latitude and elevation (where climatic conditions might be different) than Ithaca, New York, the values and figures given in the table will not necessarily apply to your forage even though it is cut at corresponding dates. It is possible that some adjustment for season would give you figures which more nearly meet your conditions. But the general effects of time of cutting are the same regardless of locality.

It is expected that an exception to this rule would be found in warm areas where plants do not lie dormant during the winter.

Much more research is needed to determine the effects of amount of rainfall, level of fertilization (particularly nitrogen), and length of day and/or amount of daylight. It seems probable that nitrogen fertilization would affect the relationship between cutting time and the protein value of nonlegumes. Information on these points would help us to perfect our prediction tools.

An attempt has been made here to adapt some recent research results to answering some of your feeding problems. This is done by tying to cutting date. If you know the cutting date, amount of legumes, and whether your roughage came from a first cutting or aftermath, you can give your cows just enough feed without wasting.

In addition, these observations point out that hay is not just hay; the earlier it is cut, the higher is its value. **THE END**

Top advertisers

Of the 100 top magazine and broadcast advertisers in 1954, five were dairy concerns. National Dairy Products Corp. ranked 17th out of the 100, Carnation Co. was 42nd, and The Borden Co., 43rd. Pet Milk Co. was in 62nd place, and The American Dairy Association ranked 80th.

Total expenditures for each of the five were: National Dairy, $10,327,232; Carnation Co., $4,128,783; Borden Co., $4,089,694; Pet Milk Co., $2,906,232, and A.D.A., $2,402,658. —The Milk Dealer.

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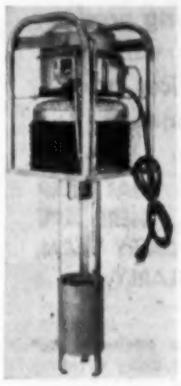

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Holstein-Friesian Association of America

Floyd Johnston
Secretary
American Jersey Cattle Club

Delegate or Proxy system

for governing a breed association?

(Continued from page 545)

instruct to vote in a specific manner on any candidate or controversial issue.

To the best of our knowledge, there is little or no sentiment to depart from the present course in the government of the Brown Swiss Cattle Breeders' Association.

Guernsey committee elects . . .

Unique to dairy breed associations is the provision in the American Guernsey Cattle Club constitution that the executive committee elects the president and vice-president as well as the treasurer and secretary.

Instead of being known as a board of directors, the governing body of the Guernsey Cattle Club is the executive committee which is composed of 15 members divided into five classes of three each. Members are elected to five-year terms and may continue to serve as long as they are elected to the committee.

To be a member of the American Guernsey Cattle Club a breeder must be recommended by another member of the club, be investigated and approved by the executive committee. After election to membership the member shall pay a fee of $50, which provides for lifetime membership.

A membership shall not exceed a period of 20 years for firms, corporations, companies, and partnerships.

The annual meeting of the Guernsey club is held each year in the month of May at such place and time as designated by the executive committee.

At all meetings of the club members may vote in person or by proxy. Proxies must be given to members only and shall only be good at the meeting for which they were given. The member has the right to designate any other member whom he may desire to hold his proxy. Or, if he wishes, he may place his proxy in the hands of the official proxy committee, which is obligated to carry out the policies and recommendations of the executive committee.

Nominations for members of the executive committee are normally made by a nominating committee appointed by the president. Although nominations may be made from the floor at the annual meeting, this is seldom done. The usual custom is to accept the recommendations of the committee.

Delegates in Holstein ass'n . . .

Perhaps the stormiest history in the government of a breed association occurred within the Holstein - Friesian Association of America from 1885 through 1921.

It was just 70 years ago that the Holstein Breeders' Association and the Dutch-Friesian Herd Book Association joined to become the Holstein - Friesian Association of America. Both parent organizations had provision for membership representation by proxy at annual meetings. The new organization also provided that a member in good standing could vote "personally or by proxy at its meetings."

At the first annual meeting, in 1885, a by-law was proposed which would prohibit a member from representing more than five proxies and from representing any proxies from outside the state of his residence. The proposed by-law was ruled illegal under the charter, but the question became an early issue and was destined to be the subject of debate for many years.

For example, at the eighth an-

nual meeting, in 1893, a resolution was adopted which provided that "no salaried officer or employee shall directly or indirectly solicit any proxy nor vote thereon." The following year a bitter proxy fight developed over a contest for the office of secretary. Eight ballots were cast before a decision was reached and Frederick L. Houghton was elected to succeed the previous secretary, Mr. Wales.

From time to time thereafter bitter fights broke out on the convention floor with reference to the proxy system. At one annual meeting one member held more proxies than the combined voting strength of all other members present, including their proxy votes.

The 1918 annual meeting, in Milwaukee, found 440 members present in person and a total vote, with proxies of 7,128. Three members acting together, with 3,818 proxies in their hands, controlled the meeting and dictated the action taken.

The climax to all this came at the 1921 annual meeting in Syracuse, New York. Preceding that meeting, a few members carried on a strenuous campaign for proxies, using as bait various pretexts including a proposal to reduce the transfer fee from $1 to 50 cents. The proxy campaign was successful.

At that meeting a resolution was presented commending the board of directors in the handling of the infamous Cabana Case. This case involved fraudulent Advanced Registry records, which the board of directors was determined to expunge. The case had been in court for nearly two years.

Four members of the Holstein Association controlled the Syracuse meeting with their proxy holdings. They were successful in defeating the resolution by a vote of 7,963 to 5,788. Thereafter these four men dictated the actions of the largest meeting of the Holstein-Friesian Association of America ever held up to that time.

At that celebrated Syracuse meeting, in 1921, ex-Governor Frank O. Lowden of Illinois was elected president of the association. He surprised the pro-proxy advocates by appointing a committee to draft plans for a representative form of government for the association.

Another campaign for proxies followed, and a special meeting of the membership was called for the express purpose of adopting some plan of representation. This meeting was held in St. Paul, Minnesota, October 11, 1921. The delegate plan of governing association affairs was adopted and the proxy system of control was laid to rest after 36 years of use and much abuse.

According to H. W. Norton, Jr., the delegate plan has proven its worth in 33 annual conventions, starting with the convention in Kansas City, in 1922. All are agreed that it has resulted in greater harmony and more constructive action than that which prevailed while the proxy system was in vogue.

Membership in the Holstein-Friesian Association is open to "any person of good character and a citizen or resident of the United States who is interested in the breeding of Holstein-Friesian cattle or the owner of such." The life membership fee is $25.

Corporations secure a 10-year and firms a 20-year membership for the $25 fee.

Under the delegate plan the 45,000 members of the Holstein-Friesian Association of America elect delegates to represent them at the annual convention. Each state constitutes an election district and all of the rest of North America is included in a special district.

Each election district is entitled to one delegate and one additional delegate for each 150 active members, or major fraction thereof, residing in the district.

Active members are defined as those who have registered or transferred cattle during the preceding 24 months, and the count is taken early in December.

Nominating petitions are printed for each of the 49 election districts, showing the number of delegates allowed the district, and mailed to the members, who must fill them out and return them to the executive secretary within 120 days of the date of the convention.

After the nominations are closed, ballots are prepared for each election district, listing the names of all members nominated for that district and stating the number to be chosen from that district. Every member of the association, whether active or inactive, has a right to nominate and vote for delegates to represent his district. Every member, except an officer or director of the association, may serve as a delegate if elected.

Delegates to the annual convention have their railroad and Pullman fares paid for by the association. Although this has been a heavy burden of expense, it has insured a very high percentage of attendance of delegates. The attendance has averaged 98 per cent of those elected.

One argument used against the delegate system, when it was under discussion at the special meeting in 1921, was that the meetings of the association would not be largely attended by the membership. It was felt that only the delegates could vote on the issues and other members would not attend.

This has not proved to be true. All issues are discussed the day before the convention in open forum and any member may have the privilege of the floor in that meeting. However, when action is taken officially on convention day, only delegates are allowed to vote.

The governing body of the Holstein association is made up of 16 directors, who serve four-year terms and are limited to two consecutive terms. They may be nominated by the official nominating committee or from the floor of the convention. The general delegate body not only elects the directors but also the president and vice-president.

The annual meeting of the Holstein-Friesian Association of America is held the first week in June at a location determined by the board of directors.

Proxies, districts for Jerseys . . .

The governing body of the American Jersey Cattle Club is the board of directors, composed of 12 members and a president who is elected by the membership. He serves one year and may succeed himself. In recent years it is understood that he will serve no longer than three years. The directors originate in nine regional districts. One director is elected from each district and three directors are elected "at-large." In the latter case, however, each of the at-large directors represents three districts.

To become a member of the American Jersey Cattle Club an applicant must be a citizen and resident of the United States, an owner of Jersey cattle, and "a careful and reliable breeder of them." He must be endorsed by at least five members of the club.

After approval by the board of directors, the member must pay an initiation fee of $50 for life membership. It is now proposed that the fee be reduced to $25.

At the annual meeting of the American Jersey Cattle Club, which is held the first Wednesday in June, any member may vote, either in person or by proxy, for directors and president. The vice-president is elected by the board of directors.

For the purpose of an election, ⅛ of all members must be represented in person or by proxy. For transaction of other business, ¼ of all members must be represented.

Nominations are made by written petitions signed by 10 or more members, or from the floor of the annual meeting. Nominations for directors may also be made by duly adopted resolutions of organized and qualified State Jersey Cattle Clubs within the respective districts of the nominees. This provision is conditioned by the requirement that 20 per cent of the members of such state clubs are also members of the national club.

Directors are elected for three-year terms and a director may not succeed himself until after the lapse of one year. The exception is in the case of a director, who, by appointment or election, has filled out the unexpired term of a deceased or resigned director. He then shall be eligible for election to a full three-year term.

The Jersey Cattle Club does have a proxy committee. State Jersey associations are encouraged, however, to have their own proxy committees to handle the proxies of members living within the state who cannot go to the national annual meeting. The proxy forms contain suitable provision for the member's choice of nominees for directors and president, and a "yes" or "no" vote on any proposition to alter or amend the constitution or by-laws.

Although the Jersey Cattle Club for years has enjoyed many bitter internal battles in which blocks of proxy votes have been used, there is no reported sentiment to change the method of government.

The farmer's voice . . .

It is apparent from a review of the government of all five breed associations, that every member has the right and opportunity to exercise his voice and vote in the determination of breed affairs. As in any group, however, the vote of the majority prevails. If a breeder wishes to have a policy changed, he must command the following of a majority of the members of his association or club. Lacking that, he must abide by the decision of the majority.

It is apparent, too, that the system of representation and government does not necessarily determine the desirability or acceptability of the results. In other words, the mechanism is available in all five breed associations for representative government. Whether or not the members use that mechanism effectively is their individual responsibility.

THE END

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July 12—Holsteins. Wisconsin Breeders Sale, Watertown, Wis. Francis Darcey & Sons, Sale Mgrs., Watertown, Wis.

Aug. 8—Holsteins. Wisconsin Breeders Sale, Watertown, Wis. Francis Darcey & Sons, Sale Mgrs., Watertown, Wis.

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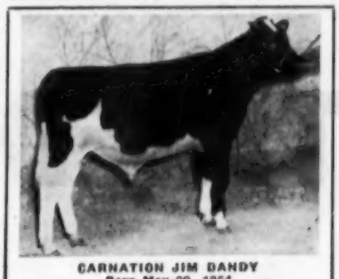

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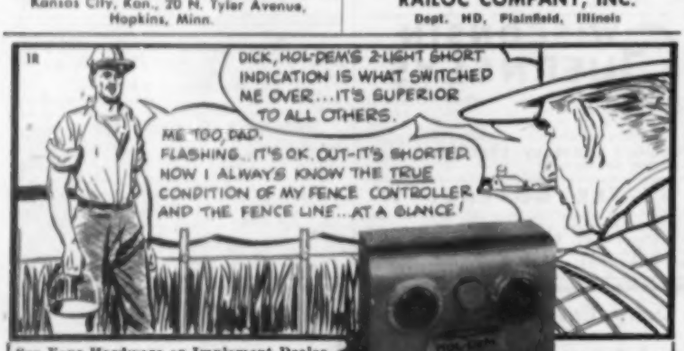
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Can we develop resistance to mastitis?

Perhaps we can breed for mastitis resistance. In one herd, daughters of one bull may have far less mastitis than those of another bull.

by E. A. Woelffer, D.V.M.

RECENTLY we had an interesting discussion with the herdsman of a large dairy herd. He related his experiences with daughters of two bulls used during approximately the same period. In spite of the fact that the environment of this herd was good, only 2 of 20 daughters of one of the bulls remained in the herd beyond the third lactation period.

According to the herdsman, the main reason for their removal from the herd was mastitis. In contrast, most of the offspring of the second bull were still going strong in the milking line.

This is not the first of such observations. From time to time similar experiences have been reported.

What does it mean?

Does it indicate that some females inherit a natural resistance to mastitis while others have little or no resistance to infection? Without question, some females have greater resistance to udder infection than others.

What constitutes resistance?

We do not know the whole story, but we do know some of the factors that influence resistance.

Infection through teat ends . . .

There is good evidence that one means of infecting the milk cistern is through the teat opening. This most often occurs when the sphincter muscle is relaxed, particularly in easy milkers.

Many times susceptibility of the teat opening is increased when there is a protrusion of the lining of the streak canal. This condition is brought about by the use of too high vacuum or faulty milking. To provide more rapid milking, operators sometimes place stones or iron weights on the claws of the machines.

Excessive suction or vacuum causes an exposure of a small portion of lining membrane at the end of the teat. This aids the entrance of infection into the teat and udder cistern. Improper milking can change an udder with high resistance into one with increased susceptibility to infection.

Improper milking, such as permitting the machine to remain on the cow too long, can cause irritation or injury of the lining near the base of the teat and in the lower part of the milk cistern. Such injury, even though slight, furnishes an entrance for infection into the milk-secreting tissues. Without infection, excessive inflammation and tissue destruction does not occur.

Pendulous udders injured . . .

Cows that inherit pendulous udders are usually quite susceptible to trouble because such udders are more liable to injury. Cuts, bruises, or breaks in the skin of the teats and udder are other means of lowering resistance.

Are there other factors of resistance?

There probably are, but what they consist of we do not know.

Milk from some cows may have greater bacterial properties. But to what extent it will destroy organisms that cause mastitis we do not know.

Likewise, there may be something in the cell structure of some udders that makes them less susceptible to attack. We need more research to gain this information. Knowing the whole story may prove invaluable in the prevention and control of mastitis.

Until we arrive at a point where mastitic cows can be promptly removed from the herd, or a way is found to increase udder resistance, we must be concerned with the environment of the herd. Good environment tends to maintain udder health. Poor environment lowers the resistance.

If udder resistance is high and infection is low, it indicates environment is good and mastitis is no problem. Mastitis is a problem, however, if resistance is high and infection is high; or if resistance is low and infection is low. It is a greater problem when udder resistance is low and infection is high.

It is excellent insurance against mastitis infection to maintain good herd environment by:

1. Housing the herd in a clean, well-ventilated barn.
2. Feeding regularly, according to milk production and general condition. Avoiding heavy, or abrupt, or drastic changes in feeding.
3. Providing comfortable, well-bedded stalls.
4. Milking regularly and establishing a good routine.
5. Keeping milking machines and rubber parts in good repair, and the vacuum at the proper level.
6. Eliminating injury hazards in yards, lanes, and pastures.
7. Avoiding exposure of cow and udder to cold drafts, chilly ground or floors.

If mastitis is a problem in your herd, use these precautions:

1. Call your veterinarian and follow his recommendations.
2. Use a strip cup daily to detect new cases.
3. Milk infected cows last.
4. Dip or wipe ends of teats with a solution of pine oil or alcohol following each milking.
5. Have infected quarters treated.
6. Eliminate badly-diseased cows.
7. Do not make a bad situation worse by bringing in cows with infected udders.

VETERINARY COLUMN

E. A. WOELFFER, D.V.M.

Another question on brucellosis

We have read about some changes in the blood test. They seem to be an improvement but don't know why. Can you explain this? How does it affect vaccinated calves?

Michigan. D. B.

Tests for brucellosis have not been changed, but some changes in interpretation of the tests have been approved. These will aid materially in reducing herd losses and controlling the disease.

In order to clarify the situation and the events that led up to the recent changes, I would like to go back a few years when brucellosis was causing greater losses than at present.

Let's assume you have a typically infected herd and the time is a number of years ago. You have no way of knowing the infection is there except perhaps to suspect its presence from a number of late gestation abortions and some breeding difficulties. Your only recourse is to blood test the herd to find out.

In such an infected herd, the usual findings are as follows: some animals will be positive which indicates they are infected; some will show suspicious reactions and some will be negative.

One initial test in an infected herd does not present a clear picture of infection insofar as the individuals in the herd are concerned. It does prove, however, that brucella infection is present.

The reason for this is that brucellosis, like many other infectious diseases, passes through what is known as an incubation period. This period is the lapse of time between the occurrence of infection and the time disease-resisting, or the defensive mechanisms of the body become fully effective. These mechanisms are usually referred to as antibodies or agglutinins. The incubation period in brucellosis may run from a few weeks to a number of months.

Since the blood test serves as a measuring stick for the presence or absence of agglutinin bodies rather than for the disease itself, a single test cannot always be relied upon to establish the true health status of the animal. The animal is infected, but if the animal is tested during the incubation stage the blood test will not definitely show it. To overcome this situation repeated tests of negative or suspicious reactors are required to establish the true status of the animal.

When calfhood vaccination came into use, this complicated the picture further. Calfhood vaccination with Strain 19 brucella vaccine has the distinct advantage of providing resistance to the disease but it also has the disadvantage of stimulating the production of agglutinins which, like those caused by infection, produce reactions in the blood.

Experience and research over a period of years has shown that a substantial number of the reactions classed as "suspects" in calfhood vaccinated herds, are the result of the vaccinations. The "suspect" reactions also may arise from certain other infections or factors that cause low-titre, nonspecific reactions.

Yes, the statistics show that suspicious reactions in clean calfhood vaccinated herds with good histories, may be classed as healthy with reasonable safety.

Suspicious reactions in unvaccinated animals must continue to be regarded as potential reactors, however, until proved otherwise by repeated blood tests.

SUNBURNED HOGS

I am raising registered Hampshire hogs. They get ordinary farm care, artificial shade, water from self waterers, and minerals and feed from self feeders. They have alfalfa and clover for range.

They seem to be burned on their white markings. What causes that?

I don't know if the burn hurts them much but it surely does not enhance their looks, as it appears raw and sore, and I think it might retard them.

What could be done for them?

Shullsburg, Wis. W. B. H.

It appears the superficial lesions on the white markings of your hogs are due to exposure to the sun after the animals have been sensitized to light by eating certain substances, such as alfalfa and clover. Some legumes are believed to contain a pigment which increases the sensitivity of the skin to light and causes a burning as you describe.

It is also possible a fungus is involved. Fungi sometime grow on plants and can be transferred to animals.

Relative to treatment, we suggest you make a change of pasture or roughage and apply a protective coating of zinc oxide or oil on the affected parts. If it appears fungi are present and the underlying tissues are involved, we suggest you consult with your local veterinarian.

CALF SCOURS

I am having quite a bit of trouble with calf scours.

Is there something to use as a preventive after the first few days following birth? Is there something that is a sure cure?

Dillsboro, Indiana. W. L. S.

Scours appearing during the first few days after birth usually are caused by an infection. To prevent scours from forming, the calf should receive the dam's colostrum for the first three days. If additional Vitamin A is necessary, a Vitamin A concentrate, in capsule form or in some other form, should be administered. Also, a suitable antibiotic should be given, either by injection or by mouth, for the first few days as a preventive or as a treatment.

Following the procedure outlined above should control the scouring. We suggest you contact your veterinarian and have him make a diagnosis and prescribe the treatment best fitted to your situation.

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"My Quonset loose-housing dairy barn helped me increase milk production 30%"

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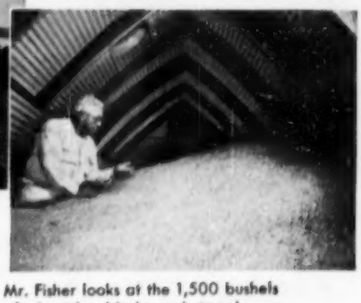

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